

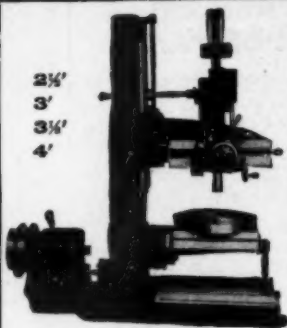
AUGUST 1910 ~ N° 56

Issued Every Month
for Free Distribution to Users
of Machine Tools

HITCHCOCK'S
**MACHINE
TOOL LIST**

A Reference Book for Buyers
of Iron Working Machinery

Published by
A. H. HITCHCOCK
1220-1235 Caxton Building
Chicago



A radial drill with a single-lever control of all spindle motions—that's the

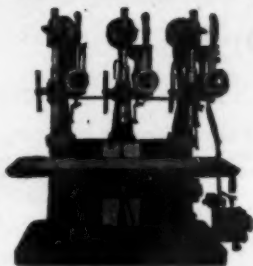
Gang Radial

The easy swing of the arm on ball bearings, firmly clamped in position by a slight movement of a lever; a speed box with 12 speeds; and exceptional rigidity throughout, are more of the good features you will find.

Have you read circular concerning our friction type head, style "G"? Let us mail you one

The Wm. E. Gang Company
Cincinnati, Ohio

Rockford Gang's



They not only drill, but they bore, ream, tap and face without removing work from jig.

Write for descriptive matter

Rockford Drilling Machine Company
Rockford, Ill., U. S. A.



For Drilling With High Speed Steel

This new 24-inch swing High Duty Drill, with a capacity for drills from $\frac{1}{8}$ in. to $1\frac{3}{4}$ in., drives high speed steel drills to their limit in solid steel. Its strong, rigid construction is clearly shown in cut. Spur gears are used entirely, except 1 pair of 2 to 1 bevel gears, and everything is driven in a straight line, with the result that practically *all* the power is transmitted directly to the drill point. This machine is reasonable in cost and it easily excels all other types in efficiency. Details?

The Foote-Burt Company,
Cleveland, Ohio.

Bench Drill

A Splendid little tool for light drilling up to 1-inch.

Is used very much for wood boring with a foot lever to throw the spindle.

Without Motor:

Weight, 55 lbs.
Net Price, \$23.00

With Motor:

Weight, 76 lbs.
Net Price, \$44.00



With
or
Without
Motor.

Reed Drill Company
Worcester, Mass

A Rigid 14-Inch Sensitive Drill Press

The spindle is balanced by plunger that fits in mill slot of sleeve, back of which is a coil spring and screw, affording a very sensitive adjustment.

The square table, which swings around column, can be tilted at any angle, with an adjustable gauge for holding work.

The round table is vertically adjustable on column and can be removed.

*Let us tell you of its handy features
and splendid construction*

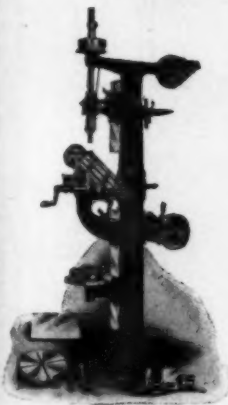


Rockford Lathe & Drill Company
Rockford, Ill.

The Handiest Tool To Date

Drilling and Milling at any Angle
and in any Position without
Resetting the Work

Knight No. 1 Drilling and Milling Machine



always proves to be one of those "indispensable," all around handy tools, that makes you wonder how you got along without it. Doing work that ordinarily requires at least two machines, saving time on every operation, it makes for speed and accuracy wherever installed. Use it for your jig, cam, die, model, pattern making, etc., and you will say we haven't told you half.

*Give the word and we will forward our folder with
sixteen half-tone illustrations*

W. B. Knight Machinery Co.
St. Louis, Mo.

Our No. 2 is a heavier tool of the same type

The Morse Rarefied Dust Collector

Particularly Adapted to Handling Metallic or Flinty Products

THE COLLECTOR is located between the source of dust supply and the fan. It does not force the air, but *draws* it, creating a partial vacuum--the "Rarefied" principle. This causes a separation of dust from air current *before reaching the fan*, practically eliminating abrasion of fan parts. The axial air escape, with the vacuum principle, reduces wear in the Collector to a minimum.

"Rarefied" Pointers

The section never varies.
Collects all dust heavier than air, and discharges it automatically.
There's no cleaning by hand, and no filling up of cloth or screen.
There's no cutting of fan.

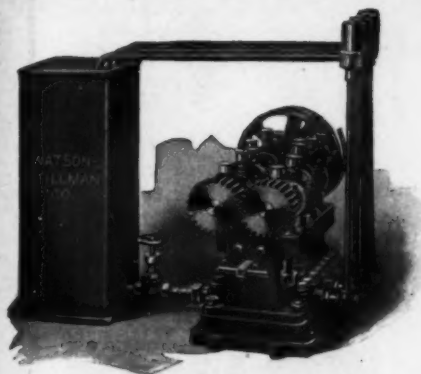
FOR THREE YEARS the Rarefied Collector has been at work on Tumbling Mills, Emery Wheel and Sand Blast--the severest test--with practically no attention, *with no undue wear and no repairs*. Don't these things suggest to you that there is one effective and economical method of getting rid of that metallic or flinty dust that has been so troublesome, injurious, dirty and unhealthful?

An investigation costs nothing. Write us, and we will help you make it.

THE KNICKERBOCKER COMPANY

JACKSON, MICH.





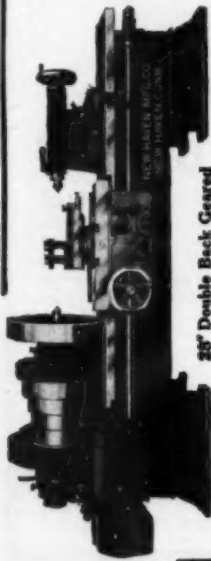
HYDRAULIC PUMPING OUTFITS

This type of pump is excellent for maintaining different pressures below 600 lbs. per square inch in a number of discharge lines, and where it is desired to have each line entirely independent of the other. Each pair of cylinders deliver into a separate pressure chamber and line, and the eccentrics are set to keep the flow of liquid steady. Any pressure line can be thrown out of service by opening its safety valve to let the liquid go back through the release line to the reservoir. The pulleys can be replaced by a motor if electric drive is preferable.

We have several hundred other standard types and sizes of pumps, and are always ready to build to order on special work. Let us know your requirements.

Ask for Pump Catalog No. 71

The Watson-Stillman Company
Church & Fulton Sts., New York



23" Double Back Geared

The evolution of New Haven Lathes, through a period of 60 years, is the history of lathe improvement and progress.

The Latest Improved

New Haven High-Power Modern Lathes

Combine the Latest Practice with New Haven Reliability

THE KEY-NOTE of New Haven Lathes has always been their *reliability*—a fact so well known that it hardly needs be stated. And when you can get a lathe of that kind, improved up to the minute, that has the power and rigidity for heavy production with high-speed steels, you need look no further. And again—our experienced shop organization will save you money, in dollars for quality, over any other lathe you can buy.

What can you use? We make them 18 to 65-inch swing, 8 to 36-foot bed.

New Haven Manufacturing Co., - New Haven, Conn.

En
care
Feed
other
T
2730

T
wid
like
of p
and
We
acc
wor
mill
furn
F
Mal

ACCURATE PLANER CENTERS

Improved with Index of Wide Range



Three sizes, 13, 20 and 36 Inch.

THIS IMPROVED INDEX not only gives an extra wide range of divisions, but the plates being cut through like a gear tooth, allows the use of a much stronger form of pin than is possible with a drilled index. Both the work and the index can quickly be disengaged when not needed. We have spared nothing to give this machine supreme accuracy, convenience and durability. Trust it for any work which must be carried on centers for planing or milling. Special index plates, for your peculiar needs, also furnished.

Let us hear from you

FAY & SCOTT, - - DEXTER, ME.

Makers of Engine, Turret, Chucking, Facing and Extension Gap Lathes. Special Turrets for Lathes of any make.



Cincinnati Lathes

Endurance and suitability for constant use is vitally important to careful buyers. Literature gives details about their two kinds of Feed Boxes, Double Wall Apron, 3 step or 5 step Cone and other important features it pays to investigate.

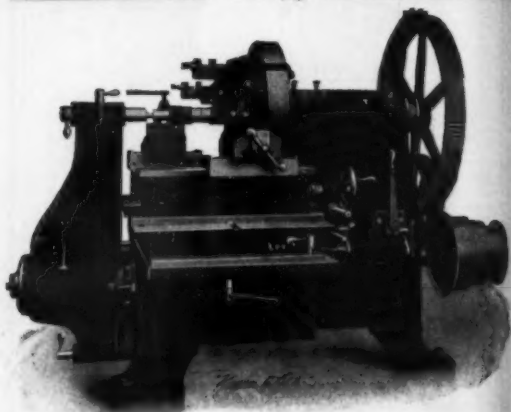
The Cincinnati Lathe & Tool Company

2730-32 Spring Grove Avenue, : : : Cincinnati, Ohio.

Streit Pulley Machinery

Will REDUCE Cost on Your Pulleys

===== 60% =====



Streit Pulley Lathe

Built in six sizes: 15, 20, 30, 36, 40 and 50 inch.

THIS PULLEY LATHE is designed for this special purpose and embodies every time saving feature possible.

Two tools working simultaneously from center in opposite direction.

Swiveling Table, setting tools at once for any crown desired.

Movable Tail Stock, facilitating quick change of work.

Special Face Plates and Drivers save cost of chucking.

Changes of feed made instantly. Lateral and cross feed.

Strong, Accurate, Rigid and Durable.

Easily Operated. Quick Adjustment.

Also adapted to gears, fly-wheels, drums, etc.

The Cincinnati Pulley Machinery Co.
Cincinnati, Ohio

Let us tell

And convince

That we can save

Hustle an inquiry to

Expect results from

Satisfy yourselves and

YOU
US

MACHINERY AND EQUIPMENT DEPT.
THE CINCINNATI IRON & STEEL CO.
CINCINNATI, U. S. A.



The United States Turning Tool

is a "winner" for all around work. The head is low, cutters are of self-hardening steel and designed for rapid and economical work. It has a solid support on the Sides of the cutter—insures heavier cut than any other holder of the same size. Saves its cost several times in a single month.

Send today for catalogue.

The Fairbanks Company
Springfield, Ohio



The One Grind Tool

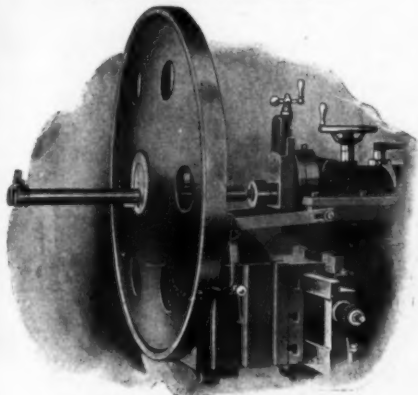
Would you give the scratch of a pen to increase the production of your Lathe department? If so, fill in this coupon and send by return mail and we will forward you some valuable information on the subject.

**The Ready Tool
Company**

Name _____ Address _____
The Ready Tool Co.
Bridgport,
Conn.

"Cincinnati" Heavy Duty Shapers

**Are Designed for the Utmost of Power,
Convenience and Capacity, and
are Made with Care.**



Key Seating Index Gear Plate 45 in. in Diameter.

The Keyseating Attachment

for use with "Cincinnati" Shapers, is an exceptionally handy and economical piece of mechanism.

**For cutting Keyways up to 1-inch wide, in
holes 9-16 inch and up in diameter**

in gears, pulleys, etc., it is both rapid and accurate. Let us send you some keyseating records.

*A Standard Shaper and a Reliable Keyseater is a mighty
Profitable Combination. Description for the asking.*

The Cincinnati Shaper Company

Colerain Ave. & Elam St., Cincinnati, Ohio

Saves Your Oil Right Along

The Curtis Extractor will Do the Trick at a Very Low Cost

INSTALL this simple, substantial machine, put in your oil soaked chips and turnings, and you have begun a steady, sure saving. It is built for long service, and is easily operated. Let us tell you how little space, power and labor this expense reducer requires.



This is a good time to begin; try it

Curtis Oil Extractor Company
95 Foster St., Worcester, Mass.

Keyways Milled



on the Drill Press

Simple as drilling a hole. Accurate duplicate work in less time than you can start it by other methods.

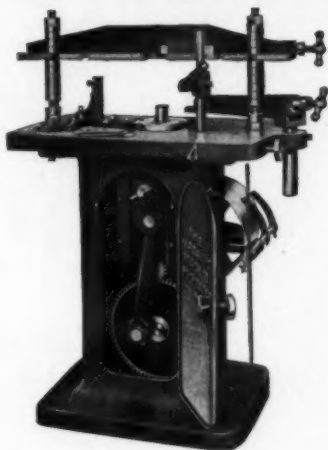
Oil grooves milled entirely within the journal, preventing oil from escaping from either end.

National Keyseat and Oil Groove Millers for all jobs of internal Oil Grooving and Keyseating.

Write for new catalogue

National Machine Tool Co.
128 Longworth St., Cincinnati, Ohio.

Accurate Machine Tools



Davis Keyseater

Made in two sizes

Suitable for internal keyseating in pulleys, gears, etc.

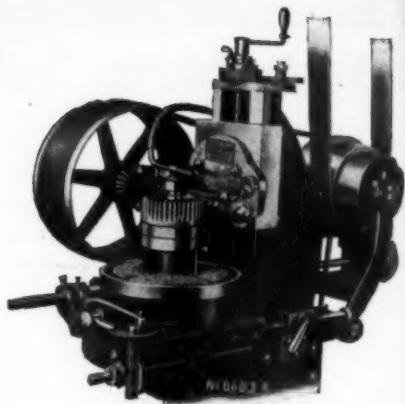
A simple, well made tool, giving a large output at a small cost.

No expert operator required.

Orders can be sent to us direct or through leading machinery dealers in all parts of the world.

For further particulars address

The W. P. Davis Machine Co.
Rochester, New York, U. S. A.



Our Very Low Prices On Spur Gear Cutting

have led some people to believe that we do such work at less than cost in order to boost **The Farwell Gear Hobber**. One automobile manufacturer in Indiana paid \$13.96 express on 114 gears in order to take advantage of our exceptionally low quotation (8c. to 8½c. each—total \$9.32), and the time turned in by our shop showed that the work cost us **83 Cents**, figuring \$1.00 per hour for a boy running four machines and allowing 7c. per pound for 42½ lbs. of bronze chips. This concern is now using three **Farwell Gear Hobbers** and has reserved floor space for more to be installed as needed.

We will be glad to give you the name of this manufacturer, or cut more gears for anyone who thinks our prices are too low.

May we not cut samples and figure on your work?

Circular 802-H.

The Adams Company
802 Second Street, Dubuque, Iowa, U. S. A.

WE PREDICT

that all progressive manufacturers producing
Spur, Worm and Spiral Gears

will eventually be compelled to use

The New Hobbing Process

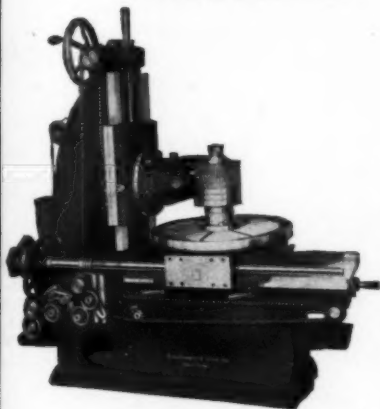
Gears produced therewith *cost less to make*, are *theoretically correct*, and, what is most important,

Run Absolutely Noiseless

This means doing away with all objections existing against gear drive and—transmission, even when used at a very high rate of speed.

Manufacturers of machinery of all descriptions,
Automobiles, Elevators, Gear Cutting shops cannot afford to be without our

**Original S. & S. Auto Gear
Hobbing Machines**



They
will
improve
and
perfect
your
own
product

Our new 52 page catalog for the asking

Schuchardt & Schutte

West Street Building, New York

ROGERS "TALKS"

ADJUSTABLE BLADE HAND REAMER



THIS is one of our most widely popular tools, and it makes us just "hustle" all the time, to keep any sort of a stock of them. With "down-to-date" men, it has long since knocked out "Solid Reamers," which soon lose their original size and consequent value. As the slots of this tool are inclined planes, simply driving the sections toward the shank brings back the missing size, and then the Reamer is new again. Every detail is "Rogers Good," and that has long been recognized as "good enough" for the most exacting mechanic.



Let us send you a full list
of all of our Reaming Tools

No. 39

THE JOHN M. ROGERS WORKS
GLOUCESTER CITY, N. J.

If You Are Interested

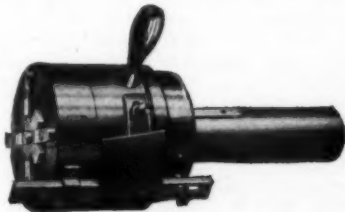
In the Cutting of

Taper Screw Threads

of any kind or size,

**The Geometric
Taper Threading Die Heads**

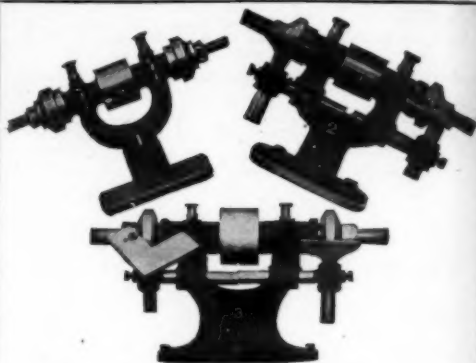
applied to the turret of your Screw Machine or Turret Lathe, will give you accuracy and large production at very low cost of installation.



Better than a special machine, for it leaves you the Screw Machine for other work when not cutting tapers.

*Write for particulars to-day, and
tell us your requirements.*

The Geometric Tool Company
New Haven, Conn., U. S. A.



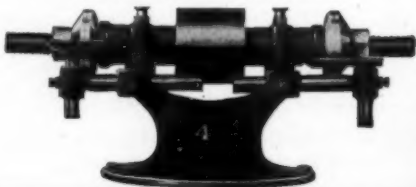
Partridge Emery Grinders

Here are four well-made Bench Grinders, adapted to light, medium and heavy work. Also furnished mounted on column. In addition, I make a high-grade heavy Floor Grinder of the cabinet type, thus being able to meet all demands for this class of tools. They are all well built, of the right materials, and have features of excellence that will interest you.

Tell me your needs in this line, and I will gladly mail full description and quote interesting price

E. O. PARTRIDGE

2047-9 Lake Street, - - CHICAGO
Also Foot Presses and Tapping Machines



RELIANCE ADJUSTABLE SPEED MOTOR



This wheel controls
the speed changes
No electrical
controller needed

REALLY accurate speed adjustments over 1 to 10 ranges are possible with this motor. The changes in speed are smooth and gradual—no steps or jumps. You get the right speed with plenty of power for every operation on all kinds of work. This means maximum output from every machine.

The installation and operation of the Reliance Adjustable Speed Motor is just as simple as the ordinary shunt wound constant speed motor—no complicated wiring necessary.

Our Folder 10-L tells all about this wonderful motor and explains in detail how it will make your machines do more work. Write for a copy today.

We also manufacture Reliance Constant Speed Motors for either alternating or direct current service.

Reliance Electric & Engineering Company
709 Caxton Bldg., Cleveland, Ohio

AIR COOLED DRILLS ARE BEST BY TEST



SEVEN SIZES TO BORE IN STEEL

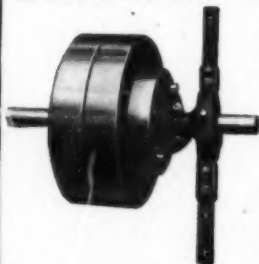
3-16, $\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, 1 and $1\frac{1}{4}$ inch. They are made for either alternating or direct current, and are dependable tools that we guarantee will give you satisfaction.

We make Center and Surface Grinders From One-Quarter to Two Horse Power

They are time and money savers that you ought to investigate. Glad to send them on trial for a test in your own work.

THE UNITED STATES ELECTRICAL TOOL CO
CINCINNATI, OHIO

EDGEMONT FRICTION CLUTCHES



Are the simplest and most powerful clutches on the market. The thousands in use prove they are made for hard service.

Over 30 of the leading machine tool manufacturers have adopted our counter-shaft clutches as a part of their regular counter-shaft, or in the manufacture of their machinery.

Cut shows our extended sleeve with steel pulley mounted.

We make special clutches for all purposes. Tell us your wants; you owe it to your factory to investigate.

Our catalog for your card

The Edgemont Machine Co., Ft. of Mound Street,
DAYTON, O.

"Hard Service"

Electrically Operated

Drills and Reamers



Manufactured in 6 sizes—
Scope 0-2 inch.

Built for service and accepted as the Standard by many of the largest users.

Write for Bulletin No. 20

Electric Department
The Van Dorn & Dutton Co.
Cleveland, Ohio



Rockford

High Duty

Power Presses

Have ample power—ample strength without excessive weight. They are thoroughly adjusted—tested—worked in, and all adjustments are convenient and easily made.

We would like to give you full details

Rockford Iron Works
Rockford, Illinois



Your goods would sell at sight were they riveted on a

Grant Noiseless Riveter.

They form absolutely perfect heads, without marring the work.

No noise or vibration while the machines are in operation.

One rivet head per second.

Capacity from the smallest rivet made up to $\frac{3}{4}$ in. in diameter.

We make eleven different sizes and styles which cover nearly every requirement.

Write for booklet and further information.

No. 81, Bench Machine.

The Grant Mfg. & Machine Co., Bridgeport, Conn.

Rapid Screw Slotting

Only One Handling of Screws
Light, Rapid and Convenient

Made in
Two Sizes



Sent on
Approval

Garvin No. 1 Rapid Screw Slotter—Capacity $\frac{1}{4}$ to $\frac{1}{2}$ in. Screws

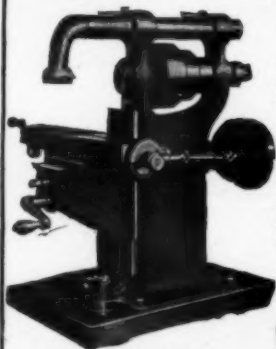
Send for circular No. 140

IMMEDIATE DELIVERY

Manufactured By

THE GARVIN MACHINE COMPANY
Spring and Varick Sts., New York City

Burke's Bench Miller



Milling Machine

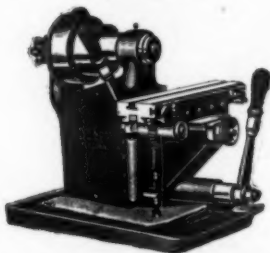
A Seasoned Tool

The tool to buy if you want extreme accuracy and permanent alignment five years hence as well as now. In making this miller the greatest care is taken thoroughly to season all castings both before and after machining. We carry these frames and parts from six to eight months after work begins on them before the final finishing is done. The result is a tool that is accurate and will stay accurate as long as you use it. For precision work it has no equal.

Longitudinal feed, 8½ in.;
traverse feed, 4 in.; vertical
motion of knee, 8½ in.;
table surface, 3½ x 16 inch.

BURKE MACHINE CO.
Conneaut, Ohio

Bench Milling Machine New Model



The Carter & Hakes Co.
Winsted, Conn., U. S. A.

Special Wood Working Tools

For Pattern Shops

Machines selected for their precision, and adjustability. Built like machine tools, and designed primarily for pattern shop service.

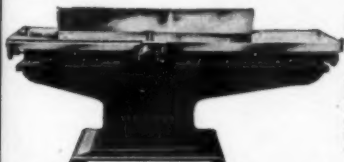
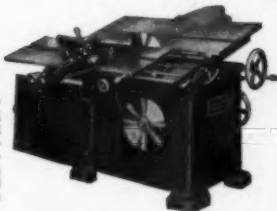
"West Side" Band Saw

Steel wheels, which can neither break, warp, twist or spring; under cut hubs; self-oiling bearings; brass-bushed loose pulley; tilting table; all adjustments made by operator without leaving his position. A band saw widely known for its superiority of design and construction.



Universal Double Saw Arbor

The best word in saw tables for accuracy and convenience. Gauges and adjustments for every possible requirement. A notable improvement upon a type of saw table conceded to be indispensable in every pattern shop.



Porter 20-inch Jointer

The highest grade jointer or hand planer in market. Patented guard and safety cylinder; specially grooved tables.

We outfit pattern shops complete, guaranteeing the accuracy and efficiency of every tool. Whether you want a full equipment or a single machine, you will find our service helpful.

We shall be pleased to have you consult us

Chicago Machinery Exchange

Manufacturers' Exclusive Representatives

159-161 North Canal Street, Chicago

Can furnish used machines, if desired, carefully rebuilt in our own shops and fully guaranteed.



JUNK

Men do not get the caps
Of Tucker's Positive Lock
Compression Grease Cups
They Won't Jar Off

For Automobiles and all
kinds of machinery having ex-
cessive vibration. Sample sent
by mail on receipt of cash,
check or money order.

Made in three sizes

		Price
No. 000	$\frac{1}{4}$ in. $\frac{1}{2}$ in. pipe	\$0.40
No. 00	$\frac{1}{2}$ in. $\frac{3}{4}$ in. pipe	0.50
No. 0	$\frac{3}{4}$ in. $1\frac{1}{4}$ in. pipe	0.60

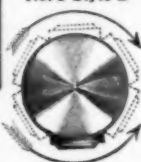
PATENTED JANUARY 11, 1910

Tucker's Oil Hole Covers

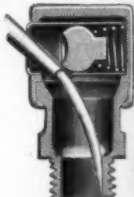
No. 5 Style B



Style C, Self Closing



Self Closing



Style A

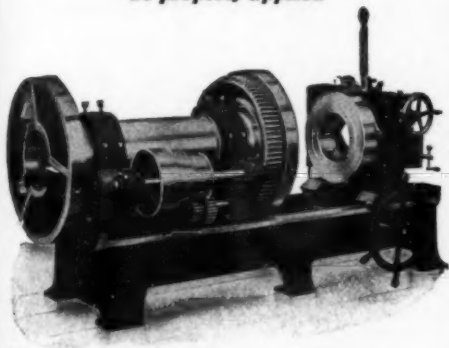


Send for Catalogue of full line for all kinds
of machinery having oil holes

W. C. & F. C. Tucker, Hartford, Conn.

When You Match Power *Against* Muscle

**Power wins out every time, when it can
be properly applied**



In our 17 Styles and Sizes of Power Pipe Machines

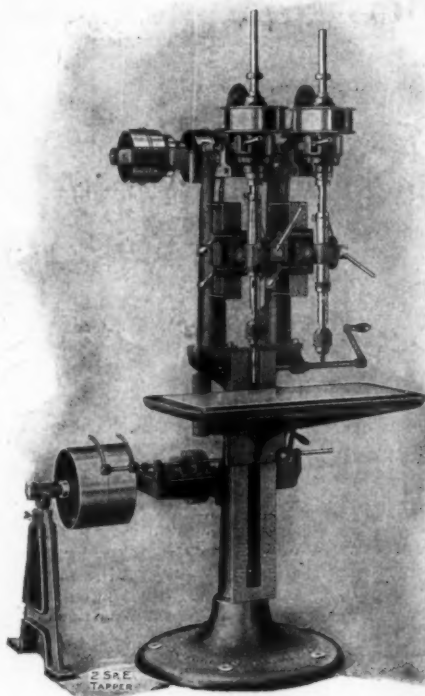
you will find one that can be properly applied to *your* pipe threading and cutting, saving tired muscles and time—dependable work at less cost.

B. & K. Pipe Machinery, with Peerless Adjusting Mechanism, is not only standard, but is built in such variety that we can fit each particular need with the proper tool.

*It will cost you nothing, at least, to find out.
What do you need right now?*

**Bignall & Keeler Mfg. Co.
Edwardsville, Ill.**

The Barr Sensitive — A Dr



E 2 Special

H. G. Barr Drilling Machine Co. 12 H

Atal Drilling

that inclu

Complete Tappi

which gives automa
only spindle move
of the lever. T
either drilling or tap

A drill chuck c
will hold the tap, wh
in perfect alignment, w
that rapid, smooth

No. 1 weighs 550 lbs.
10 in.

No. 2 weighs 275 lbs.
10 in.

Style 1 is adapted to St
for multiple drills.

Style 2 is adapted to St
for multiple drills.

A combination
equipped with ou
and quick return to p
economically...the la
method of handling j
or for drilling or tap
ping

Drill and Tapping

Shows that actual
price cost.

For description

Drill that is a Tapper

And Drilling Machine

that includes a

Complete Tapping Device

which operates automatically at both end of spindle movement by means of feed and lever. The change for drilling or tapping is made instantly.

As drill chuck or slip chuck will hold the tap, which runs true, in perfect alignment, with an action that is rapid, smooth and positive.

No. 51 weighs 550 lbs., drills 3-4 in., taps 2 in.

No. 52 weighs 275 lbs., drills 1-2 in., taps 1 in.

Style A is adapted to Style A. and Style B. for multiple drills.

Style C is adapted to Style E. and Style F. for multiple drills.

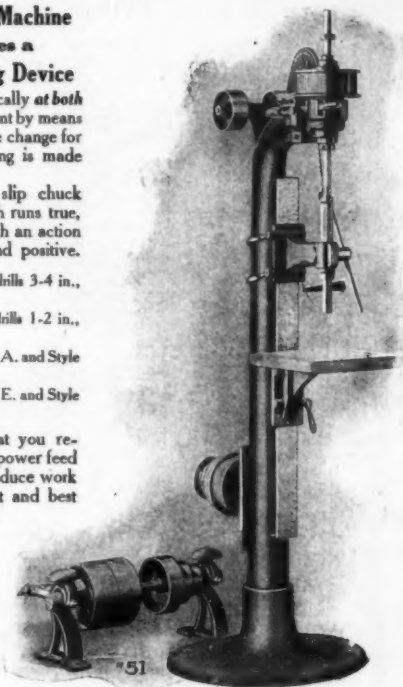
A combination that you require, changed with our power feed and quick return to produce work economically---the latest and best method of handling jig or face drilling or tapping.

Drill and Tapping Machine that actually reduce cost.

Write for description

No. 51

Co. 12 Hermon St., Worcester, Mass.



Mono Rail Hoists and Over Head Track Systems



A five ton hoist operated from cab or floor. Used to transfer material from one building to another, for unloading cars, general yard work, etc.

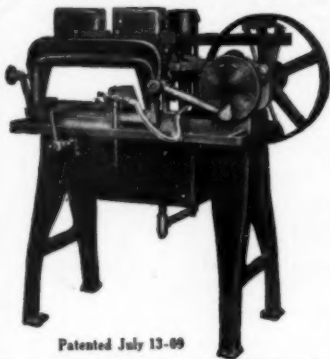
Mono Rail Hoists and trolleys of all types.

Nothing too large or too small, to receive our careful and prompt attention.

The Euclid Crane & Hoist Company

Euclid, Ohio, U. S. A.

RACINE-HIGH-SPEED-SAWS



**Cut Your
Cutting Cost**

Will Do The
Work of 6
Ordinary
Machines

Successive
Orders
Prove Their
Superiority

Sent on 30 days
trial

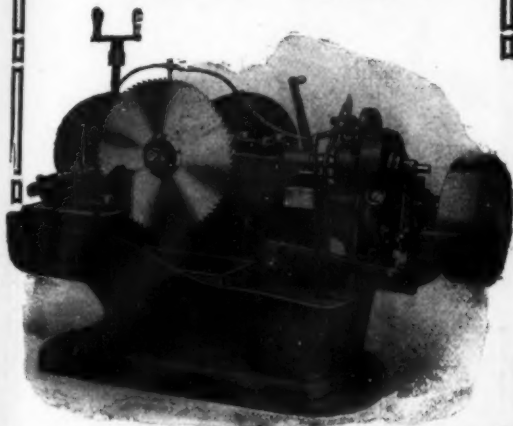
Patented July 13-09

Racine Tool & Mche. Co., 1441 Junction Ave., Racine, Wis.
Successors to Racine Gas Engine Co.

Cochrane-Bly Metal Saws

Excel in Design, Workmanship and Efficiency

Made in six sizes—3-inch to 8-inch capacity



No. 5. 6-Inch Type

Carriage extends solid underneath the ways. No bolted on gibs.

Extra large spindle hardened and ground.

Powerful drive through hardened gears.

Positive screw feed—10 changes.

Two speeds to saw spindle.

Oil pumps, automatic stop and return.

*This machine has maintained a daily output of
96 pieces of 5½-inch steel*

Our catalogue gives full description

Cochrane-Bly Company

118 St. James St., - Rochester, New York, U. S. A.

Also manufacturers of Saw Sharpening and Filing Machines

"A Steel Cutting Wonder"

That's What They All Say About
The Abrasive Metal Cutter



AND THAT'S what you would say after you had seen it cut $\frac{1}{2}$ -in. square bars of *air hardened steel* in 10 seconds, 5-16 in. bars of high speed steel in 5 seconds. Other grades in proportionate time, without ever drawing the temper. Nor is any grinding to shape necessary, as everything is cut square and true. Extra thin

or flexible tubing, filled with wire or rubber, is cut in 2 seconds, leaving a polished finish.

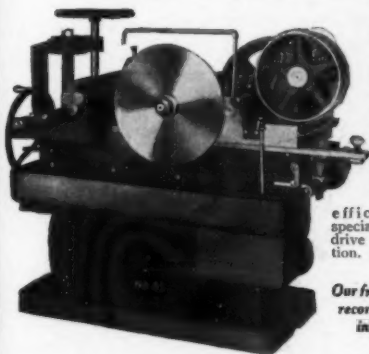
This rapid, accurate metal cutting machine is a splendid time-material-money saver--

But don't just take our word for it--investigate

Slack Manufacturing Co.
Springfield, Vt.

Rapid--Accurate--Economical

**Our Meal Saw Cutting-Off Machine
Will Save Money in Your Shop**



YOU will understand **why** when you see our No. 54. The thin saw with which this machine is fitted saves material, and is driven at a speed that gives it the highest possible cutting efficiency. The special spur gear drive reduces friction.

Our free folder gives records and other information.

Has Your Saw Correct Teeth?

It needs them for Fast Work

and economical production. Our Automatic Saw Sharpening and Beveling Machine shapes them right all the time. The same operation also bevels every other tooth on opposite sides, giving them the relief which prevents clogging and enables the saw to run faster and do more work. The net result will be a neat saving for you.

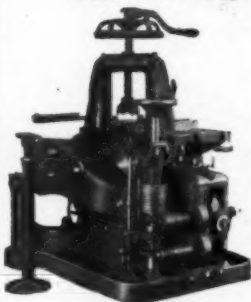


*Glad to answer your questions;
send 'em along*

Nutter & Barnes Company

326 A Street, Boston, Mass.

As Convenient to Operate As an Automobile



On the Lea-Simplex Cold Metal Saw the operator, without taking a step, can raise and lower the blade by hand, put in the power feed, throw in the power return, vary the rate of feed or adjust the automatic trip.

Learn all the features.

Ask for new 1910 folder--free

LEA EQUIPMENT COMPANY
90 West Street, New York City.

A 12 Inch Saw, \$100.

Immediate Delivery

Screw Feed and Ball Bearing Thrust

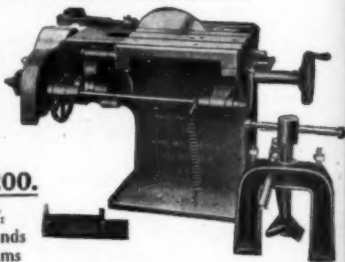
Cuts 3x5 or
1-2x9 inch.
Power Friction
Feed.

Automatic
Knockout.

Large Clamp-
ing Table.

20 in., \$200.

CAPACITY:
5½ Inch Rounds
12 Inch I Beams



Write for particulars

Burke Machine Co., Conneaut, Ohio

Royal Power Saw No. 3



Will cut 8 inches.

Has a graduated swivel vise.

Automatic stop.

All surfaces are machined fine
and bearings well fitted.

For cutting all kinds of bar stock in hard or
soft metals it has no equal. We make 5 sizes.

Get circulars and prices today

Frontier Iron Works

Buffalo, N. Y.

Power Saws and Drill Presses

A Combination Chuck

That Combines Two Good Chucks in One
Reversible Jawed Chucks that have Strong Jaws



THE HOGGSON & PETTIS MFG. CO., New Haven, Conn.

Machine Tool Makers

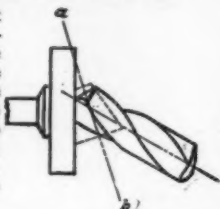
should investigate carefully the facilities offered by **Hitchcock's Machine Tool List** for reaching this trade in all parts of the country. Its circulation is specialized to completely cover *every line of manufacture* in which machine tools are used—as well as all railroad and other tool-using shops—with a thoroughness and effectiveness not equalled by any other advertising medium.

Secrets of Right Grinding

Are Applied Automatically On

The American Drill Grinder

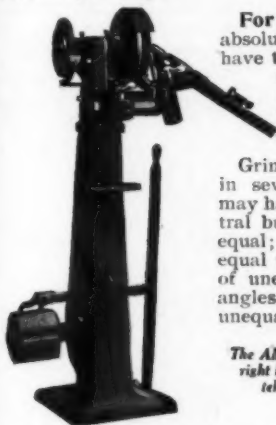
The drill swings about the axis, *a b*, inclined toward the face of the wheel, which gives the point a gradual increase in clearance from outside to center, enabling it to stand a high rate of feed, to require little pressure, and to give long service between grindings.



For right drilling it is absolutely necessary to have the cutting lips of equal length and make equal angles with the center line of the drill.

Grinding may be wrong in several ways:—You may have the point central but the angles unequal; the angles may be equal while the lips are of unequal length; both angles and lips may be unequal.

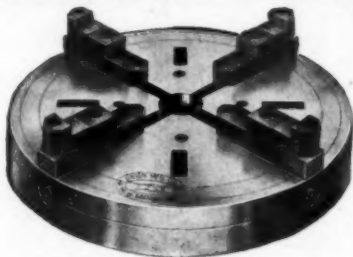
The AMERICAN makes for the right kind every time; let us tell you how we make it that way



THE HEALD MACHINE COMPANY

25 New Bond St., - - Worcester, Mass.

Combination Chucks



Reversible Jaws, and made for ordinary machine shop work.

Union Manufacturing Company

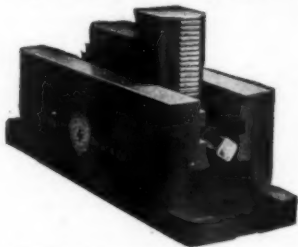
New Britain, Conn.

26 Cortlandt St., New York

Makers of a complete line of CHUCKS

FACE PLATE JAWS

with Patented Hardened Steel Bushings
are a good substitute for large chucks.

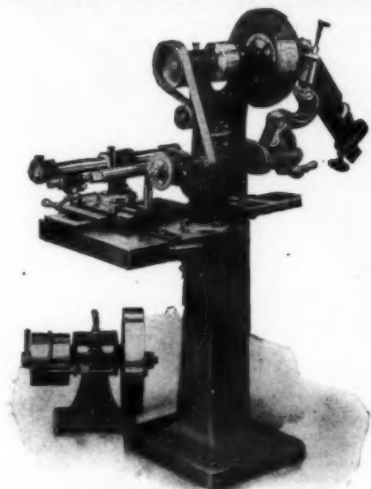


THE CINCINNATI CHUCK CO., Cincinnati, Ohio

Chicago Branch:
11 N. Canal St.

New York Branch:
136 Liberty St.

**COMBINATION
DRILL, CUTTER AND
REAMER GRINDER**



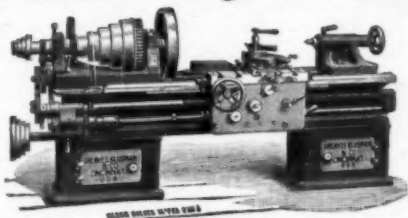
STYLE BX. Weight 385 lbs.

For simplicity and accuracy this machine is not equalled. No preliminary adjusting for grinding drills; range of work on Cutter Grinder equal to the much more expensive machines on market which do not grind drills; drills and cutters can be ground at same time by two operators without one interfering with the other; and the price is right.

Send for catalog fully illustrating

WILMARTH & MORMAN CO.
575 Canal St., Grand Rapids, Mich.

Standard Engine Lathes



Simple Accurate Powerful Convenient
Furnished with either standard 5-step cone or with 3-step cone double-back-gear, **carrying a wide belt**, with 18 speeds and wide feed range.

GREAVES, KLUSMAN & CO
Cincinnati, Ohio, U. S. A.

THE LODGE & SHIPLEY MACHINE TOOL CO.

Offers at a bargain the following tools, some of which are **NOW IN USE** in its own shops:

LATHES.

One 24 in. x 8 ft., 5 step cone head, quick change gear Lodge & Shipley lathe with turret on carriage.

Two 3½ in. x 60 in. Fitchburg Machine Works Lo-swing lathes.

One No. 3 Lodge & Shipley Rapid Reduction lathe with 8 ft. bed.

TURRET CHUCKING LATHE.

One 30 in. x 8 ft., 4 step cone head, power feed to turret, Lodge & Shipley.

PLANERS.

One 36x36 in. x 10 ft., 3 head, William Sellers Co.

One 36x36 in. x 26 ft., 4 head, William Sellers Co.

One 42x42 in. x 20 ft., single head, Putnam Machine Tool Co.

The Lodge & Shipley Machine Tool Co.
CINCINNATI, OHIO, U. S. A.

The Value of Office Appliances

(The Magazine)
to You

who are the buyers and users of office appliances, supplies and furniture—you who pay the bills and count the cost—is not based on theoretical plans or ideas. It is the more tangible value of dollars and cents. Its advertisements tell you just what, where and how to buy to simplify office methods, and to save you money in the doing.

If you are interested in installing the very latest devices for the handling of your detail work, Office Appliances offers the *only* medium of gaining a close technical knowledge of those on the market.

This 140 Page Monthly Magazine of Office Equipment is a touch with the market place of the modern machinery of business; a universal office appliance gazetteer, a manufacturers' index, a buyers' guide, a permanent exposition of all that is newest, oldest or best in the realm of business equipment.

Time spent in reading **Office Appliances** is in reality time saved. A few minutes with your Business Machinery Magazine represents **hours** of editorial time, and an infinite amount of patience and skill in the selective process.

Pin a Dollar Bill

to this advertisement and mail to us today. That dollar bill will bring to your desk for eight months the one technical magazine of all the business world which will keep you, your auditor, your purchasing agent and your entire organization on the firing line of business—abreast of the times and in line with progress.

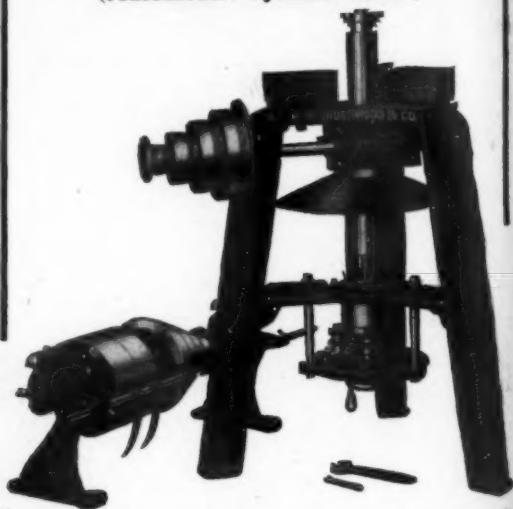
A sample copy is **free** for the asking, but why not pin the dollar bill to this advertisement **today**, and let us start the service at once?

You will see the returns on that dollar grow with each succeeding month.

The Office Appliance Co.
Plymouth Building, Chicago, Ill.

Vertical Boring Machine

(Automobile Cylinder Borer)



YOU WILL find it invaluable in your repair shop, especially for the reboring of automobile and motor boat cylinders.

This machine was originally designed by us for use in our own shops, but it's so good—quick and accurate—it pays us to pass it along. The wide range of its usefulness and its great economy will surprise you.

Our Catalogue of Portable Tools? It's yours for a postal

H. B. Underwood & Company
1022 Buttonwood St., Philadelphia, Pa.

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14x6 L
18x8 L
19x7 M
17x7 C

Chain
Gasol
Gasol
Hoist
Lathe
Punch
Volum
Pipe m

Second-Hand Machinery.

Lists of second-hand machinery, either for sale or wanted, will be published under this heading at the rate of **40 cents a line**, across the page, each issue, with a minimum charge of **\$4.00**. Sub-headings are counted as one line, but the name and address of advertiser are not included in the space charged for. Prices and full descriptions of the machines listed will be furnished by the parties offering them for sale. If you do not find what you require, use the slip inclosed with each book to make known your wants to the publisher.

FOR SALE BY

The C. F. Streit Mfg. Co. - - - **Cincinnati, Ohio**
 Blowers, with separator, (3).
 Shafting, hangers and pulleys, different sizes.
 Will sell for half of wholesale price.
 Send for list.

FOR SALE BY

New Haven Manufacturing Co., - - - **New Haven, Conn.**
PLANERS.
 34 in. square x10 ft., double heads, new (2).
 40x36 in. x10 ft., double heads, rebuilt, practically good as new; immediate delivery.

FOR SALE BY

Frank Toomey, Inc., - **127 N. Third St., Philadelphia, Pa.**
MILLING MACHINES.
 No. 2 Cincinnati, universal. | No. 2 Brown & Sharpe, plain (2).
 No. 1 Brown & Sharpe, universal (2). | 36 in. x12 ft. heavy slab miller.
HAMMERS AND RADIAL DRILLS.
 1500 lbs. Bement & Miles d. f. | 250 lbs. Morgan s. f.
 750 lbs. Bement & Miles d. f. | 36 in. Morris radial.
LATHES.
 25x10 Prentice. | 38x22 Fitchburg.
MISCELLANEOUS.
 Boring mill, vertical, 10 ft. Betts. | Planer, 60x60x22 Dietrick & Harvey,
 Pulley lathe, 60 in. New Haven. | open side.
 Planer, 30x30x8 Flather, two heads. | Shaper, 26 in. Gould & Eberhardt.

FOR SALE BY

The Broadway Machinery Co., - **236-238 Broadway, Cincinnati, O.**
LATHES AND DRILLS
 12x5 Cady engine lathe. | 12 in. Prentiss sensitive press.
 14x6 Blaisdell, p. r., power feed. | 14 in. press, wheel & lever feed.
 18x8 Blaisdell, p. r., power feed. | 24 in. Aurora boring press, power fd.
 19x7 Munzer, p. r., hand feed. | 28 in. McFarlan press, power feeds.
 17x7 Conway, p. r., power feed. | 200 lb. belt power hammer.
MISCELLANEOUS
 Chain blocks 1, 1½, 2, 2½, 3, 3½ tons capacity.
 Gasoline engines, 2, 3, 4, 6, 8, 12, 25 h. p., stationary.
 Gasoline engines, 2, 4, 5, 6, 20 h. p., marine type.
 Hoisting engine, also steam engines and boilers, all sizes.
 Lathe chucks, all sizes.
 Punches and shears, hand screw, extra heavy.
 Volume blowers and exhaust fans, various sizes.
 Pipe machines, buffing lathes, emery grinders.

SECOND-HAND MACHINERY

FOR SALE BY

The H. A. Stocker Machinery Co., 566-72 W. Randolph St., Chicago

TURRET LATHES AND SCREW MACHINES

- 2x24 Jones & Lamson flat turret, single drive, geared heads, latest type, including attachments, good condition (2).
 2x24 J. & L. flat turret, 1896 pattern, outfit of tools, splendid working order.
 20 in. Fay & Scott universal turret, complete, practically good as new.
 4 in. Cleveland automatic screw machine, present pattern, good order.
 No. 00 Brown & Sharpe automatic, latest pattern.
 No. 51 National-Acme automatic screw machine, latest pattern, never used.
 1 in. Brown & Sharpe automatic screw machine, 1891 pattern.
 No. 2 Brown & Sharpe screw machine, wire feed, automatic chuck.

MILLING MACHINES.

- No. 4 Brown & Sharpe, universal.
 No. 1 Cincinnati universal, 1902.
 No. 24 Brown & Sharpe, plain.
 No. 18 Kempsmith plain, back gd.
 No. 1B Kearney & Trecker, geared feeds, gd. hd., single pulley drive.
 No. 13 Garvin, plain, dividing head, vertical attachment.
 No. 12 Garvin, plain, with vise.

GEAR CUTTERS

- 50 in. Gould & Eberhardt auto., for spur, bevel and skew gears, good as new.
 42 in. Gould & Eberhardt auto., for spur gears only, 1899 pattern, good order.
 26 in. No. 3 Brown & Sharpe automatic, fine condition.
 Grant-Lees worm gear hobbing machine, just like new.
 No. 1 Whiton, spur and bevel; Dwight Slate automatic pinion cutter.

LATHES

- 50x20 New Haven, triple geared.
 30x16 Flather.
 24x18 Fitchburg.
 24 x 16 Fitchburg.
 24x10 Lodge & Shipley, motor dr.
 20x14 L. & S., q. c., fine cond.
 28 Lathes, 16 to 18 in. by 4 to 12 ft.
 48x19 Johnson, triple back geared.

RADIAL AND UPRIGHT DRILLS

- 6 ft. Bickford, gear box drive.
 5 ft. Bickford, gr. box & motor dr.
 5 ft. Western, cone drive, universal.
 4 ft. Bickford, cone drive.
 34 in. Barnes, sl. hd., b. g., p. f.
 28 in. Snyder, sl. hd., b. g., p. f.
 26 in. Prentice Bros., sl. hd., b. g., p. f.
 About 20 drills, 24 in. and smaller.

PLANERS.

- 72x72x14 Niles, 4 heads, A. 1.
 48x42x12 Pond, 2 heads, rebuilt.
 36x36x12 Gray, 2 hds., A-1 cond. (2).
 36x36x12 Cincinnati, 2 hds., nearly new.
 30x26x10 Flather, 2 hds., 4 speed dr.
 30x30x12 Gray, 2 heads, fine.
 30x30x8 New Haven, 1 head.
 7 smaller planers.

SHAPERS.

- 20 in. Cincinnati, back gd., crank.
 18 in. Fitchburg, trav. head.

KEYSEATERS.

- 60 in. Morton, portable.
 48 in. Morton.
 No. 00 Baker Bros.

GRINDING MACHINES.

- 18x96 in. Norton plain, complete, little used.
 Milwaukee and Whitney wet tool grinders.
 Sellers tool room grinder for lathe, planer and shaper tools, & twist drill att.
 No. 2 Brown & Sharpe surface grinder, with magnetic chuck.
 No. 1 Landis universal, fine order.
 No. 16 Landis plain, 10x72 in., splendid condition.

POWER PRESSES.

- No. 95 Bliss, gd., 3 bolster plates.
 Nos. 2 & 4 American Can, o. b., inc.
 No. 3 Perkins.
 No. 2 American Can (2).
 1200 lb. Merrill, drop hammer.
 Full line Walsh new presses.

BORING AND TURNING MILLS.

- 10-16 ft. Niles, 2 heads, motor drive, large assortment of attachments.
 42 in. Bullard, single swivel turret head, chuck table, thread cutting.
 36 in. old style, good for pulley work, will sell cheap.
 42 in. Niles car wheel borer, with crane and chuck table.
 No. 0 Niles horizontal, like new.
 No. 3 Niles horizontal, long feed to bar.

PUNCHES AND SHEARS

- 42 in. throat Bement single end punch and shear, cap. 4x1 1/2 in.
 36 in. throat Humphrey single end punch and shear, cap. 1 1/2 x 1 1/2 in.
 No. 4 Cincinnati single end, 8 in. throat, cap. 4x1 1/2 in.
 This list includes only a part of our stock; let us hear from you.

SECOND-HAND MACHINERY

FOR SALE BY

Niles-Bement-Pond Company, 111 Broadway, New York.
Located at Chicago, Boston and New York.

LATHES.

12x6 Champion, compound rest.	21x6 Bridgeport, turret boring.
14x6 F. B. Miles, compound rest.	21 and 48 in. Harrington, gap, boring and chuck.
16x6 speed lathe.	21x8 Star, turret carriage.
14x5 American, square arbor.....\$ 50	22x16 Fitchburg.
16x8 Fitchburg, compound rest.	32x16 Pond, compound rest.
18x6 Blaisdell, rise and fall rest.	
19x6 D. W. Pond, turret tool post.	

TURRET MACHINERY.

4 in. No. 1 Garvin, wire feed.....\$125	4 in. No. 0 Hartford, automatic.....\$225
4 in. No. 0 Pratt & W., wire feed.	4x1 in. National Acme, spindle automatic.....150
4 in. No. 1 Costello, wire feed.....\$165	4 in. No. 1 Spencer, single turret, automatic.....150
24 in. Conradson, semi-automatic.	21-32x14 in. No. 2 Brown & S., automatic.....350
28 in. size J, Gisholt.	
4 in. No. 00 Hartford, Pratt & Whitney, automatic.....275	

SHAPERS AND PLANERS.

15 in. Hendey, friction.	26x23 in.x16 ft. Ferris & Niles, 2 hds.
18 in. Cincinnati, dbl. hd., traverse.	30x30 in.x24 ft. Sellers, 2 heads.
17x17 in.x4 ft. Whitcomb.	32x32 in.x14 ft. Niles.
26x26 in.x6 ft. Pond.	48x48 in.x16 ft. Belmar Eames, 4 hds.

DRILLS.

9 in. No. 1 Pratt & Whitney, bench.	6ft. 10 in. Niles No. 2, semi-univ.
13 in. No. 1 sensitive friction, 110 volt, d. c. motor.	7 ft. 6 in. Niles No. 5, full univ.
30 in. Gould & E., sliding head.	10 in. 2 spindle Slate, sensitive.
36 in. Gould & E., sliding head.	12 in. 2 spindle Foote-Burt, sensitive.
48 in. Niles, sliding head.	14 in. 3 spindle Garvin, gang.....\$ 60
Prentiss port, univ. rad., cap. 2 in.	14 in. 4 spindle D. P. N.....75
3 ft. Gair, plain radial.....\$200	17 in. 4 spindle J. & L., gang....75
4 ft. 6 in. Barr, plain radial.....200	14 in. 6 spindle No. 3 Garvin, gang.
5 ft. Niles, semi-universal.	6 spindle special Langelier.
5 ft. 6 in. Niles, outboard col.	No. 10 16 spindle Pratt & Whitney, cap. 1 15-16 in., 220 v., d. c. motor.

BORING MILLS.

36 in. No. 2 Brown & S., vert. turret.	Nicholson & Waterman boring machine, 3 in. spindle.
37 in. Bullard, vertical, 2 heads.	Bement & Son horiz., 2 1/2 in. spindle.
21 in. Pond, 3 heads.	Stearns 96 in. special cylinder borer.
Kelly horizontal, 3 in. spindle.	

GRINDERS.

14x2 in. Gould & E., water tool.....\$ 25	Diamond polishing stand.....\$ 15
18x2 in. Pedrick, double wet tool.....20	No. 0 Northampton polishing jack.
24x3 in. Pedrick, double wet tool.....75	Swing frame grinder and polisher.
20x17 in. Ransom, water tool.	Diamond.....\$ 45
3 in. Sellers drill grinder.	No. 1 Blount.

MILLING MACHINES.

No. 2 Brown & Sharpe, universal, 20x10x16 in.	No. 4 Becker-Brainard, plain, 34x7x16 in.
No. 2 Garvin, plain, 31 1/2x5x16 in.	Garvin single spindle profiler, table 21x24 in.....\$250
No. 4 Brown & Sharpe, universal, 40x7x2 in.	4 in. Garvin hor. screw slotter....40

MISCELLANEOUS.

Arbor press, power, 3 in. screw.....\$ 50	Planer vise, 16x34 in.....25
Bicycle tube hand rolls.....20	Planer vise, 10x2 in., swivel base.....30
Brazing furnace, gasoline, 24x16 in.	Press, bench, No. 0 Stiles pattern.
Cut-off machine, 3 1/2 in. Betts.....\$ 75	Punch and shear, combination, power, 4 in. capacity.....\$ 25
Cut-off machine, 3 1/2 in. H. & R.....50	Spiral spring winding mche., Shuster.
Hack saw, No. 2 Robertson.	Tapping machine, horizontal, No. 1 Garvin.
Hammer, power, 350 lb. Lingle.	Vulcanizer, rubber, Hartford, small.
Forging machine, 2 in. Blakeale.	
Iron forge on legs, 28x13x9 in....25	

SECOND-HAND MACHINERY

FOR SALE BY

Marshall & Huschart Machinery Company,

17 S. Jefferson St., Chicago. 45-47 S. Capitol Ave., Indianapolis.

908 N. Second St., St. Louis. 309 Railway Exc., Milwaukee.

BOLT CUTTERS.

- 1½ in. Webster & Perks, double head.
- 1½ in. Economic, single head, complete, almost new.
- 2 in. Acme, single head.

BORING MILLS.

- No. 1 Binsse horizontal, 2½ in. bar.
- 34 in. Colburn, swivel turret head, geared feed, 3-jaw combination chuck.
- 42 in. Bullard, single turret head, 3-jaw combination chuck.
- 10-16 ft. Niles extension, two regular heads, one extension head.
- 14-20 ft. Niles extension, with two regular heads on cross rail.

DRILLS.

- 3 ft. Economic plain radial, cone drive, plain table.
- 4ft. No. 1 Bickford, full universal, cone drive, plain table, tapping attachment (equal to new).
- 20 in. W. F. & John Barnes, stationary head, wheel and lever feed.
- 28 in. Aurora, sliding head, p. l., a. s., b. g.
- 40 in. sliding head, hand wheel feed.
- Small Barnes friction drive.
- Two spindle rim drill.

GEAR CUTTERS

- D. E. Whiton 36 in. automatic, spur gears only (used two months).
- 40x9 in. Gould & Eberhardt, spur gears only.

GRINDERS.

- No. 50 Saxon, cylinder.
- No. 3-A Landis universal, all regular accessories.
- Barnes water tool.
- Garvin cutter grinder.
- No. 2 Brown & Sharpe, cutter.
- No. 7 Bansom double emery.
- American twist drill.

HAMMERS.

- 100 lb. Mayer Brothers "Little Giant" trip hammer (new).
- 800 lb. Monighan, single frame, steam.

LATHES.

- 16 in. x 8 ft. Flather, plain rest, hollow spindle, taper attachment.
- 18 in. x 6 ft. Lodge & Davis, hollow spindle, plain rest, 3 jaw chuck.
- 18 in. x 8 ft. American, compound rest, hollow spindle, quick change gear, two chucks fitted.
- 26 in. x 12 ft. Reed, hollow spindle, compound rest, chuck.
- 28 in. x 26 ft. Ames, solid spindle, plain rest, chuck.
- 42-61 in. x 16 ft. Ames, triple geared, compound rest, power angular feed.

TURRET LATHES.

- 28 in. Pond, rigid turret.
- 42 in. New Haven.
- 2x24 in. Jones & Lamson, flat turret.
- No. 4 Windsor, back geared, cut-off rest, oil pan, chuck, countershaft.

MILLING MACHINES.

- Hilles & Jones, vertical.
- Small Kempsmith, plain, hand and power feed.
- 15 in. x 8 ft. Keystone slab miller.
- No. 3 Becker-Brainard, plain, gd. fd.
- No. 3 American Tool Works, plain, power longitudinal and cross feeds.
- No. 5 Becker, vert., all power feeds.

PLANERS.

- 24x24x6 Ohio, one head.
- 24x24x6 Powell, one head.
- 24x24x7 New Haven, one head.
- 24x27x7 New Haven, one head.
- 27x27x8 Fitchburg, one head.
- 30x30x8 Whitcomb, one head.
- 36x36x8 Enterprise, one head.
- 36x36x10 Pratt & Whitney, one head.

SHAPERS.

- 18 in. Juengst.
- 20 in. Rockford, back geared, table support, vise.
- 24 in. Steptoe, shifting belt.
- 24 in. Walter Bros.
- 32 in. Steptoe, triple geared.

MISCELLANEOUS.

- Keyseater, Morton.
- Keyseater, No. 2 Baker (Colburn).
- Slotters, 10 in. Putnam, with circular table.

MECOND-HAND MACHINERY

FOR SALE BY

The E. L. Esley Mchy Co., 555-557 Washington Blvd., Chicago, Ill.

DRILLS.

- 3 spindle Burnham, sensitive, $\frac{1}{2}$ cap.
- 4 spindle No. 3 Garvin, multiple.
- 6 spindle No. 3 Garvin, multiple.
- Baker Bros. upright high speed drill presses, complete, nearly new, (2).
- 14 in. Mechanics, gear driven, $\frac{1}{2}$ cap.
- 22 in. Bickford, sl. hd., overhauled.

BORING MILLS.

- 37 in. Streit pulley boring machine
- 37 in. Baush & H., 2 heads, pl. table.

ENGINE LATHES.

- 13 in. Gisholt "G" standard turret lathe, complete for bar work, nearly new.
- 14x7 Blaisdell, taper attachment.
- 15x6 Von Wyck, b. g., latest pattern, 3 months old (2).
- 16x6 Muller, hollow spindle, p. c. f.
- 16x6 Lodge & S., quick change gear.
- 16x8 LeBlond, pl. rest, $1\frac{1}{2}$ in. hole.
- 17x8 Perkins, rebuilt.

MISCELLANEOUS LATHES.

- 15x5 B. & O., Monitor, back geared.
- No. 21 Garvin, plain head, Monitor.
- 13-16 in. hollow spindle.
- No. 2 12 in. Foster plain hd. Monitor.
- 14 in. Monitor, plain head, F. K.
- 24 in. Davis chucking, set over turret.

TINNERS' TOOLS.

- 6 New square shears, 22 to 42 in. wide, for light and heavy work.
- SECOND-HAND**
- Bar folder, 21 in. Keystone.
- Beader, Niagara No. 1, geared, heavy, hand power.
- Hurr, Superior, small.
- Circle shear, Wough No. 2.
- Cornice brakes.
- Crimper, Niagara, geared.

MISCELLANEOUS.

- Air compressor, 13x8x12 in. Curtis, belt driven, cap. 161 cubic ft. per minute.
- Bench folder, 30 in.
- Bolt cutter, $1\frac{1}{2}$ in. Adams, single Landis head.
- Bolt cutter, 2 in. Bement, single.
- Bolt pointer, 1 in. Adams.
- Brake, No. 2C Dries & K., 7 ft. 14 ga.
- Buffing lathe, 2 h. p. motor drive, 110 volts, d. c.
- Gear cutter, 18 in. Becker, spur gears only, used 3 months.
- Grinder, No. 1 Diamond, double wheel face.
- Grinder, 20x3 in. Diamond, single wheel, wet.
- Miller, vertical, No. 3 Becker, with rotary, practically new.
- Motor, 10 h. p. Crocker-Wheeler 230 v., d. c., starting box & switch.

A partial list of used machinery for quick delivery. Write for our complete list of new and used machinery, and state your wants: we may have it.

- 21 in. Fosdick wheel and lever drill.
- 24 in. Mechanics, sliding head, complete, b. g., p. f., nearly new.
- 28 in. Moline, sliding head, upright, nearly new.
- 28 in. Hamilton, sliding head, back geared, power feed.

- 42 in. Colburn, rebuilt by factory, 1 swivel hd., 1 turret hd., plain table.

- 18x6 Fuller & Wilson, good, cheap.
- 18x8 Le Blond, fine condition.
- 18x8 Lodge & Davis, compound rest.
- 18x10 Johnson, h. s., p. c. f., cheap.
- 20x6 Flather, overhauled, fine cond.
- 21x12 Blaisdell, with 16 in. 4-j. chuck.
- 32x18 New Haven, compound rest.
- 33x26 New Haven, fine condition.
- 36x14 Pratt & Whitney, solid spndl.
- 36x25 New Haven, c. r., fine order.

- 28 in. Gisholt, standard turret, comp.
- 2x24 in. Jones & L., flat turret, (3).
- Pearson b. g. hub machine, like turret lathe, 24 in. h. s.
- 30 in. Henly pulley lathe, for boring and turning pulleys.

- Folder, 42 in. Wright.
- Folder, bench, 30 in., cap. 24 gauge.
- Forming rolls, oval, 30 in. O'Brien.
- Groover, 20 in., Stow.
- Setting down machine, Niagara.
- Square shears (6).
- Tinners' shears, 8 in. jaw.
- Turner, Superior, small.
- Wiring machine, Superior.
- And other tools.

SECOND-HAND MACHINERY

FOR SALE BY

Wickes Brothers,

West & Cedar Sts., New York City.

LATHES.

12x4 automatic threading, hol. spdl.
12x4 Lodge & Davis, turret.
15x5 Lodge & Davis, turret.
15x5 Draper, hollow spindle.
15x6 Blaisdell, hollow spindle.

16x5 Prentice, hollow spindle.
16x6 Sebastian, hollow spindle.
30x11 ft. 6 in. Wood & Light.
36x16 Pond.
36 in. pulley lathes, (2).

RADIAL DRILLS.

42 in. Baush.
48 in. Plain.
54 in. Warren.

5 ft. Niles, plain.
6 ft. Niles, plain.

HAMMERS.

150 lb. Hotchkiss, air cushion.
600 lb. Merrill, drop hammer.
10,000 lb. Morgan, dbl. stand, steam.

6000 lb. Ferris & Miles, double stand, steam.

SHEARS.

18 in. Hilles & Jones, alligator, capacity 4 in. round or 3½ in. square.

24 in. Alligator, engine driven, capacity 4 in.

PIPE MACHINES.

Loew-Victor, cap. 1½ in. x6 ft., new.
10 in. Bignall & Keeler.

3 in. Saunders.
Curtis hand, cap. 2½ to 6 in. (4).

PLANERS.

15x11x22 in., crank.
22x22x5 Putnam.
24x24x7 Aldrich & Calvert.
34x35x10 Pratt & Whitney.

42x35x7 Bement, double head.
66x60x30 Bement, 3 heads.
66x61x23 ft. 8 in. Bement, 3 heads.

FOR SALE BY

The Chicago House Wrecking Co., W. 35th and Iron Sts., Chicago.

NEW AND USED MACHINERY.

Boilers, 60 in. diam. x16 ft., 90 lbs., lap joint, double riveted, (4).
Boilers, 72 in. diam. x20 ft., 100 lbs., lap joint, quadruple riveted (7).
Boilers, 78 in. diam. x 20 ft., 115 lbs., lap joint, triple riveted. (6).
Boiler, fire box, 70 h. p. Economic.
Boiler, internally fired, 40 h. p. Atlas.
Boring mill, 8 ft. Niles, single head.
Drill press, radial, 4½ ft. arm, Universal plain.
Drill press, radial, 4½ ft. arm, Gang pl.
Drill press, vertical, 30 in. Prentiss.
Drill press, vertical, 36 in. Prentiss.
Engines, vertical, 5x5, new, (6).
Engines, vertical, 7x7, new, (7).
Engines, vertical, 7x8, new, (6).
Engine, 14x36 Brown-Corliss, r. h.
Engine, 18x42 Allis-Corliss, left hand.
Engine, auto., 29x56 in. Buckeye.

Engine, automatic center crank, 16x18 Atlas.
Engine, slide valve, 18x24 Atlas, left hand.
Gasoline engine, 8 h. p. Bates & Edmunds, single cylinder, vertical, type.
Hoisting engine, 12x15 Lidgerwood, double drum.
Jaw crusher, 9x14 Gates.
Locomotive, 36 in. gauge, 9x16 Baldwin.
Mortiser and boring machine, Greenlee, horizontal type.
Pump, duplex, 10x6x10 Dean.
Pump, triplex, 6x8 Deming, belt dr.
Resaw, band, 44 in. McDonough, 2½ in. saw.
Road roller, 15 ton Kelly.
Traction engine, 25 h. p. Colean.

STEEL TANKS.

1000 gallon capacity (12).
1500 gallon capacity (22).
3000 gallon capacity (7).
3670 gallon capacity (13).

3800 gallon capacity (4).
4500 gallon capacity (42).
5000 gallon capacity (37).
6000 gallon capacity (150).

We have large machine shops, and every engine, boiler and machine is thoroughly overhauled and tested before leaving our plant. In addition we have structural iron, pipe, shafting, pulleys, corrugated roofing, steel and metal ceiling and siding, lumber, mill work, complete plambing outfits for factories and public buildings, office and parlour furniture. Send for new 500 page catalog No. 889. Free on request.

40 telephones, all Yards 1900.

SECOND-HAND MACHINERY

FOR SALE BY

J. J. McCabe,

30 Church St., New York City.

LATHES.

100 in. x30 ft. triple geared, Bement.
84 in. x24 ft. triple geared, Boston.
82 in. tr. gd. pit lathe, t. stock & carr.
76 in. double head driving wheel lathe, Bement.
64 in. x30 ft. triple geared, Bement.
60 in. x18 ft. triple geared, Fitchburg.
54 in. x 21 ft. triple geared, Fitchburg.
52 in. x28 ft. tr. gd., Hewes & Phil.
50 in. x32 ft. triple geared, Putnam.
48 in. x24 ft. triple geared, Fitchburg.
48 in. x16 ft. triple geared, Putnam.
38 in. x16 ft. back geared, Fifeild.
28 in. x13 ft. triple geared, Gleason.
37 in. x20 ft. risers 43 in., American.
34 in. x12 ft. triple geared, Fitchburg.
32 in. x13 ft. back geared, Pond.
30 in. x23 ft. Pond.
30 in. x17½ ft. Pond.

28 in. x15 ft. Worcester.
28 in. x14 ft. Harrington.
27 in. x20 ft. Pond.
26 in. x13 ft. Bement, taper.
26 in. x12 ft. Niles.
25 in. x16 ft. Lathe & Morse.
23 in. x14 ft. Blaisdell.
24 in. x10 ft. Standard.
22 in. x10 ft. Pond.
21 in. x10 ft. Putnam.
20 in. x12 ft. Pond.
20 in. x9 ft. Pond.
20 in. x8 ft. Draper, quick change.
18 in. x8 ft. Reed, plain rest.
18 in. x8 ft. Putnam.
16 in. x8 ft. Bogert, plain rest.
16 in. x6 ft. Morris, quick change.
16 in. x6 ft. Putnam.
14 in. x8 ft. Reed.

PLANERS.

72 in. x26 ft. Sellers, 4 heads.
72 in. x18 ft. Bement, 4 heads.
54 in. x16 ft. Sellers, 4 heads.
50 in. x16 ft. Bement, 2 heads.
42 in. x18 ft. Niles, 2 heads.
37 in. x11 ft. Niles, 3 heads.
36 in. x11 ft. Sellers, 2 heads.
36 in. x10 ft. Bement, 2 heads.
36 in. x9 ft. Sellers, 2 heads.
36 in. x8 ft. Pond, 2 heads.

36 in. x8 ft. Pond, 1 head.
35 in. x12 ft. New Haven, 2 heads.
34 in. x14 ft. Gleason, 1 head.
32 in. x10 ft. Pond, 2 heads.
30 in. x8 ft. Fitchburg, 1 head.
30 in. x7 ft. Sellers, 2 heads.
27 in. x7 ft. New Haven, 1 head.
26 in. x6 ft. Putnam, 1 head.
24 in. x6 ft. Pond, 1 head.
17 in. x4 ft. Miles, 1 head.

BORING MACHINES

10 ft. upright, 2 heads, Niles.
7 ft. upright, 1 head, Bement.
6 ft. upright, 2 heads, Sellers.
5 ft. upright, 2 heads, Niles.
4 ft. upright, 2 heads, Colburn.
3 ft. upright, 1 head, Bullard.

Hor. floor boring machine, double column and attachment, Niles.
Horizontal 2½ in. spindle, Bement.
Horizontal 2 in. spindle, Sellers.
Horizontal 1½ in. spindle, Garvin.

DRILLS—UPRIGHT AND RADIAL.

144 in. radial, plain, Baush.
132 in. radial, plain, Sellers.
120 in. radial, full universal, Warren.
110 in. radial, full universal, Bement Miles.
90 in. upright, Harrington.

40 in. upright, Prentice.
38 in. upright, New Haven.
36 in. upright, Pond.
32 in. upright, Pond.
28 in. upright, Snyder.
26 in. upright, Barnes.

MISCELLANEOUS.

Bolt cutters, 1 & 1½ in. Acme.
Cutting-off machine, 3 in. Pratt & W.
Gap turret lathe, 32-50 in. Gisholt.
Gap turret lathe, 32 in. American.
Gap turret lathe, 27 in. American.
Gap turret lathe, 24 in. Gisholt.
Gas engine, 6 h. p., White & M.
Gear cutter, 30 in. Gould & E.
Grinder, auto. surface, Walker.
Grinder, univ. cutter and tool, Cin'ti.
Keyseater, 12 in stroke, Newton.
Miller, Lincoln style, Garvin.

Pipe machine, 4 in. Philadelphia.
Screw mche., 2½ in. P. & W., wire fd.
Slotters, 16 in. Sellers; 12 in. Bement.
Shaper, crank, 26 in. Prentiss.
Shaper, friction, 30 in. Putnam.
Shaper, crank, 15 in. Gould & E.
Shaper, 14 in. Fitchburg, traveling hd.
Slab miller, 3 in. x11 ft. Newton.
Slab miller, 22 in. x5 ft. Ingorsoll.
Sprue cutter, No. 172 Bliss.
Steam hammer, 4,000 lb., Bement.
Steam hammer, 1,250 lb., Bement.

RAILROAD TOOLS.

Driving wheel lathe, 79 in. dble hd.
Car-wheel grinder, double head.

Double end axle & centering mche.
Dbl. hd. axle lathe, 27 in. Bridgeford.

BRIDGE & BOILER TOOLS.

10 ft. bending rolls, hinged housing.
6 ft. bending rolls, solid housing.

24 in. punch & shear, single, heavy.
9 in. punch & shear, Hilles & Jones.

SECOND-HAND MACHINERY

FOR SALE BY

The Osborne & Sexton Machinery Co., . . . Columbus, Ohio.

LATHES.

2x24 in. Jones & Lamson turret.	18x6 rise & fall rest.
12x5 W. C. Young, compound rest.	20x10 hollow spindle, comp. rest.
13x8 Barnes, comp. rest, hol. spindle.	20x18 Hamilton, quick change, taper, nearly new.
14x6 Springfield, c. r., h. s., taper.	26x10 Pond, compound rest, p. c. f.
16x6 rise & fall rest.	48x18 Fifield, triple geared.
16x10 L. & S., quick change, taper.	

DRILL PRESSES.

4 spindle sensitive.	54 in. Sellers, compound table, back geared, power feed.
20x21 in. plain and back geared.	

MISCELLANEOUS.

Cock grinder, double.	Hammer, steam, 1,100 lb., Morgan, Planer, 30x30x12 Bement-Daugherty.
Flexible shaft drill, complete.	Presses, foot, No. 1 Consolidated (5).
Gas engines, 10, 15, 25 and 100 h. p.	Presses, power, No. 2 Consol. (2).
Hack saws, Nos. 1, 2 and 3.	Shaper, 24 in. Steptoe, triple geared.
Hammers, 750, 3,000 and 5,000 lbs.;	Tapping machine, Webster & Perks.
Toledo friction board drop.	

We have other second-hand machines. Mail us your requirements.

FOR SALE BY

A. D. White Machinery Co., . . . 108-114 N. Jefferson St., Chicago.

LATHES.

9x42 in. Shepard, hollow spindle.	16x32x16 Fay & Scott, ex. gap.
14x6 Putnam, r. & f., cheap.	18x8 LeBlond c. r. h. s.
16x6 Flather, comp. rest & h. s.	20x12 LeBlond c. r. h. s.
16x6 Shellenbach, comp. rest & h. s.	20x12 Flather, comp. rest & h. s.
16x8 Davis, compound rest, hollow spindle.	28x25 Putnam, compound rest.
	30x10 Powell, compound rest.

SCREW MACHINES AND TURRET LATHES.

No. 00 Brown & Sharpe, automatic, turret forming (2).	1 in. Costillo, hand.
7 in. Cleveland, automatic.	2 in. American, a. c. & w. f.
7 in. Pratt & Whitney, automatic (5)	2 in. Cleveland, automatic.
7 in. Cleveland, automatic.	18 in. Davis & Egan, 24 in. h. s.
	16 in. Windsor, raised to 24 in.

DRILLS AND BORING MACHINES.

6 spindle Fox, sensitive drill.	33 in. Cincinnati, p. f. & b. g.
20 in. Mechanics friction drill.	42 in. Niles mill, 2 heads, new.
28 in. Barnes, p. f. & b. g.	10 ft. Niles boring mill, 2 heads.

MILLING MACHINES AND GEAR CUTTERS.

No. 2 Brown & Sharpe, universal.	No. 5 Becker vertical miller.
No. 2 P. & W. hor., adjustable head.	30 in. G. & E., automatic.
No. 2 Garvin, Lincoln.	36 in. Fellows, gear shaper.

PLANERS AND SHAPERS.

16 in. Gould & Eberhardt, b. g.	24x6 Pend planer.
16 in. Smith & Mills, geared.	30x30x8 Powell.
16 in. Steptoe, plain crank.	32x32x12 Niles 2 heads.

GAS ENGINE.

We offer for quick sale one 20 h. p. Columbus Gas Engine, with muffler. Has been used but a very short time and is in excellent condition. practically as good as new. Spot cash, \$250. If you need an engine, get in on this quick!

MISCELLANEOUS.

Hammer, steam, double frame, 650 lb. Morgan & Williams.	Hammer, power, 50 lb. Fairbanks.
Hammer, steam, single frame, 2,000 lb. Monighan.	Keyseater, No. 0 Mitts & Merrill.
	Press, toggle, No. 1 1/2 Bliss.

Our latest "Yellow Book" is ready. You can have it regularly if you'll drop us a postal card.

SECOND-HAND MACHINERY

FOR SALE BY

Prentiss Tool & Supply Co., New York, Boston, Buffalo, Syracuse
LATHES.

13x5 Robbins, compound rest, power cross feed.
14x6 Lodge & Shipley, patent head.
15x6 Flather, compound rest, power cross feed.
16x6 Draper, compound rest, power cross feed.
18x6 Flather, compound rest, power cross feed, taper.
18x8 Hendey, plain rest, power cross feed.
18x10 Perkins, compound rest, power cross feed.
20x8 Fay & Scott, compound rest, power cross feed.
22x12 Gleason, compound rest, power cross feed.
24x10 Hendey-Norton, compound rest, taper attachment.
24x12 Fifield, compound rest, power cross feed.
26x14 Perkins, compound rest, power cross feed.

27x12 Pratt & Whitney, plain rest.
28x28 plain rest.
28x28 shafting lathe.
30x10 Putnam, compound rest, power cross feed.
36x12 Pond, compound rest, power cross feed.
36x16 Reed, compound rest, power cross feed.
32x17 Bement, triple geared, compound rest.
37x18 Sellers, compound rest, power cross feed.
38x14 New Haven, compound rest power cross feed.
38x20 Fay & Scott, compound rest, power cross feed.
40x18 Newark, triple geared.
42x26 American, triple geared.
84x20 compound rest, power cross feed.
103x35 Bement, triple geared.

MILLERS.

No. 1 Pratt & Whitney, plain.
No. 2 Brown & Sharpe, vertical.
No. 2 Hendey, plain, back geared.
No. 4 Brown & Sharpe, plain.

No. 13 Brown & Sharpe, plain.
No. 24 Brown & Sharpe, plain.
No. 4 Burke, bench.
No. 1 Cooper Bros, die sinker.

DRILLS.

16 in. style F, Baker Bros.
21 in. Snyder, back geared & power feed.
25 in. Prentice Bros., back geared.
Baker Bros. high speed.
30 in. New Haven, sliding head.

60 in. Bickford, stationary head.
5 ft. Bickford, universal radial.
5 1/2 ft. Niles, universal radial.
2 spindle Fox, sensitive.
No. 1 Barnes horizontal.

SHAPERS.

15 in. Pratt & Whitney.
15 in. Hendey, friction.

18 in. Putnam, friction.
26 in. Lodge & Davis, shifting belt.

GEAR CUTTERS.

12 in. Gould & Eberhardt, hand.

26 in. Brown & Sharpe, automatic.

AUTOMATIC SCREW MACHINES.

1/4 in. No. 52 National-Acme.

1/4 in. "K" Hartford.

PLANERS.

16x16x4 Hendey, 1 head.
18x24x5 American, 1 head.
18x24x5 Gould & Eberhardt.
20x30x6 Pond, 1 head.
20x30x8 Cincinnati, 1 head.

32x32x8 Pease, 1 head.
33x33x8 Betts, 1 head.
48x48x16 Sellers, two heads.
54x48x16 Pond, four heads.
81x54x16 Betts, 1 head.

HAMMERS.

50 lb. Bradley, compact.

1000 lb. Pratt & Whitney, drop.

MISCELLANEOUS.

Cold saw, 24 in. Newton.
Cold Saw, No. 21 Higley.
Engine, gas, 8 h. p., Fairbanks.
Engine, steam, 8x10 in. Ide.
Gear cutter, 60 in. x 12 ft. Gould & Eberhardt.
Grinder, universal, No. 2 Landis.
Keyseater, No. 1 Davis.

Pipe machine, 2 in. Bignall & Keeler.
Pipe machine, 3 in. Jarecki.
Profiler, 1 spindle, Garvin.
Screw machine, 1 1/2 in. Spencer, automatic, double end.
Slotter, 13 in. Bement.
Slotter, 16 in. Bement, crank.

SECOND-HAND MACHINERY

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

210-212 Washington Ave.

St. Louis, Mo.

LATHES.

18x6 Fitchburg.
24x12 New Haven.

25x28 New Haven.
50x16 New Haven, triple geared.

DRILLS.

22 in. sliding head.
24 in. Cincinnati, with tapping att.
28 in. Barnes.

30 in. Lodge & Davis.
5 ft. plain radial.
6 spindle Quint.

PLANERS AND SHAPERS.

24 in. Gould & Eberhardt shaper.
26x26x6 New Haven planer.

30x30x8 Whitcomb planer.
36x36x12 New Haven planer.

PUNCHES AND SHEARS.

7 in. throat No. 6 Queen City punch,
capacity $\frac{1}{2}$ in $\frac{1}{2}$ in.

18 in. throat No. 5 Long & A. punch.
48 in. throat heavy splitting shear.

MISCELLANEOUS.

Bending rolls, 8 ft., drop end, 7 in.
diameter.
Bending rolls, 8 ft., 10 in. diameter.
Bending rolls, 10 ft., drop end,
Wickes Bros.
Column facing lathe, double head.

Hammer, 60 lb. Yeakley.
Hammer, 90 lb. Justice.
Keyway cutter, No. 6 Morton.
Pipe machine, 6 in. Bignall & Keeler.
Pipe machine, 12 in. Bignall & Keeler.
Press, No. C-2 Ferracut.

FOR SALE BY

Don M. Osborne, 719 St. Clair Ave., N. E., Cleveland, Ohio

HAMMERS.

500 lb. Bement, steam, single frame.
2,000 lb. Bement, steam, dbl. fr. \$750

5,000 lb. drop, friction board, Toledo.
for sheet metal work.

LATHES.

18 in. x 6 ft. Lodge & Davis, compound rest & taper.
22 in. American turret lathe, 4 $\frac{1}{2}$ in. hole thru spindle, with pump, scroll
chuck and Reeves variable speed countershaft.
25 in. x 10 ft. LeBlond heavy turret lathe, with power feed turret on sheam,
three step cone, double back geared quick change, 24 in chuck, heavy car-
riage with compound rests.
30 in. x 31 ft. Ohi & Co., triple geared, 25 ft. between centers, comp. rests.
42 in. x 16 ft. Crane, compound rest, \$400.
48 in. x 24 ft. Michel, triple back geared, compound rest, 18 ft. centers.
60 in. x 42 $\frac{1}{2}$ ft. Hughes & Phillips, tr. gd., c. r., 33 ft. between centers.
60 in. x 45 ft. Roach, triple geared, 35 $\frac{1}{2}$ between centers, compound rest.
66 in. x 35 ft. Hughes & Phillips, triple geared, 26 ft. centers, 48 in. raised to 60 in.
64 in. x 60 ft. Thomas Shanks & Co., Glasgow, double lathe, 50 ft. between
centers; one end swings 64 in., other 50 in.; 2 head stocks, 2 tail stocks and
2 carriages; triple back geared at both ends; one carriage has screw feed full
length of bed, the other has double tool post and feeds half length of bed;
will sell cheap.

PLANERS.

48x48x10 Niles, 2 heads, par. drive,
fine condition.
60x60x18 old style, good order, cheap.

96x96x20 Betts, single head, good or-
der, cheap.

SLOTTER.

Slotter, 24 in. Niles, actual stroke of bar 60 in., for outside work; excellent
condition, price reasonable.

MISCELLANEOUS.

Bolt cutter, Acme, class A., $\frac{1}{2}$ in. capacity.
Tool grinder, universal, Barr, good.

If you have used machine tools for sale or exchange, advise me.

C.C.

Sgl.
No. 6
No. 6
No. 7
No. 3

48 in.
Wet
No. 6
Rod g
No. 3
No. 26
ble c

Roots
21 in.
7 in. o
49 in. c
No. 32
18 in. l

No. 0
No. 03

10 in. F
4 in. B
Ferry
No. 1

Chain
2-spind
Riveter
Hand c

No. 1 S
Gas fu

Air drill
Air ho
Anvil,
Anvil,
Maltre
Heater
Belting
Black
Boring
Center
Chucks,
Cleaner
Cold sa
Cornice
Counter
Crank t
Crimper
Cutter g
Cutting
Divid'g
Drilling
Filer an
Fire ext
Former
Friction

SECOND-HAND MACHINERY

FOR SALE BY

C.C. Worner Mach'y Co., 94 96 W. Woodbridge St., Detroit, Mich.

POLISHING AND BUFFING MACHINERY

Sgl. end bench polisher.
No. 6 Blount, overhanging arm, new.
No. 6 Blount buffer, new.
No. 7 Blount buffer, on col., new.
No. 3 Blount combination, new.

4 in. spld. sgl. end bench polisher.
No. 5 Blount buffer, new.
14 in. Middleditch polisher, new.
No. 1 Blount combination, new.
Belt strapping attach., Blount, new.

GRINDING MACHINERY

48 in. automatic knife grinder.
Wet emery grinder, 32 in. wheel.
No. 6 Diamond wet emery.
Rod grinder, 34 in. centers.
No. 3 Ruby bench emery.
No. 26 Huntington suspended, double end.

32 in. Union knife grinder.
No. 2 Diamond wet tool grinder.
No. 1 Diamond bench wet grinder.
No. B Challenge dbl. end, emery.
No. 5 Diamond, dbl. end on col.
No. 0 Buckeye twist drill grinder, new.

FORGES, BLOWERS, FANS

Roots rotary hand blower.
21 in. hearth forge.
7 in. outlet Sturtevant blower.
40 in. disc ventilator.
No. 32 Buffalo blast forge.
18 in. hearth Silver forge, new.

60 in. Fuller disc ventilator.
No. P-2 Canedy blower.
21 in. Huyatt forge blower.
No. 6 Roots hor. cupola blower.
No. 2 Sturtevant volume blower.
18 in. hearth Champion forge, new.

KEYSEATERS

No. 0 Mitts & Merrill, 7 in. stroke.
No. 0 Mitts & Merrill, variable st.

12 in. Morton. crank motion.
No. 1 Davis, 4 in. stroke.

TAPPING MACHINES

10 in. Baker, style K-11.
4 in. Besly, bench.
Ferry auto, nut tapper, 4 in.
No. A Burke, bench, new.

4 in. Besly, bench.
4 in. bench tapper.
1 in. Ohio hand nut tapper.
No. D Burke, bench, new.

CHAIN MACHINERY

Chain block reamer, 0 in. to 4 in.
2-spindle Garvin stud machine.
Riveter, 3-16 in. Shuster.
Hand chain testing machine.

Chain rivet spinner, 2 spindle.
Automatic chain stud machine.
Hand chain stretcher.
Hollow rivet setter.

FURNACES

No. 1 Stewart oven muffle, new.
Gas furnace for soldering.

Stewart comb. furnace & blower.
No. 6 American, soft metal.

MISCELLANY

Air drill, No. 3 Little Giant.
Air hoist, 7 1/2 in. x 2 ft. stroke.
Anvil, 107 lb. Horn.
Anvil, 125 lb., steel faced.
Balancing ways, No. 2 Bowsler.
Bender on col., power.
Belting, leather, 2 to 8 in. wide.
Blacksmith bellows, 3 to 6 in. vises.
Boring mill, 9 ft. Sellers.
Centering machine, Slocomb.
Chucks, all sizes, lathe and drill.
Cleaner, No. 27 Clipper.
Cold saw, No. 11 Higley.
Cornice brake, 8 ft. Ohl.
Countershafts, all sizes.
Crank turning machine, 7 in. cap.
Crimper, No. 1 Bliss, double head.
Cutter grinder, Pratt & Whitney.
Cutting-off mach., 4 in. Hurlbut & R.
Divid'g hd. & tailst'k, 10 in. Garvin.
Drilling head, No. 4 Stowe.
Filer and hack saw, Simplex, bench.
Fire extinguisher, Standard.
Former & beader, No. 2 Bliss bench.
Friction clutch, 3 1/2 x 1 1/2 x 3 7/16 in.

Gear cutting attachment for lathe.
Gear hobber, No. 1 Farwell, new.
Hangers, 10 to 24 in. drop, miscellany.
Lock seamer, Erdman & Kerchres.
Magnetic separator, Sawyer.
Machine heads for valve miller.
Pinion cutter, No 1 Slate, auto.
Plating tank, 26x26x19 in.
Plating plant equip., miscellany lot.
Pulleys, wood split, 3 to 64 in.
Safe, 30x36x26 Barnes.
Scale, 30,000 lb., hopper, Fairbanks.
Shafting, 1 1/2-16 in. to 2 1/2-16 in.
Slide rest for speed lathe.
Soldering machine, 8 ft. long.
Tire upsetters, Ideal and Detroit.
Tire shrinker, No. 1 Wylie & R.
Tire benders (3).
Tire welder and shear, No. 4 L. & A.
Tube cutter on column.
Tube cutter, roller, 3 in. disc.
Tumbling barrel, wood frame.
Turret attachment, 4 spindles.
Valve miller, 6 spindle.
Worm cutting mch., Kal. auto.

SECOND-HAND MACHINERY

FOR SALE BY

New York Machinery Exchange, - 50 Church St., New York City.

11 Garvin hand milling machines.

19 Garvin plain milling machines.

22 Turret lathes and screw machines.

All the above are located in a plant just purchased.

ENGINE LATHES.

18x14 Shumacher-Boye.

20x10 Pond.

22x36 Blaisdell.

24x28 Reed, for motor drive.

28x20 Lodge-Barker.

36x22 Sellers, triple geared.

38x22 Pond, 2 carriages.

38x22 Face plate drive.

42x16 Niles screw cutting.

60x19 Screw cutting.

FOR SALE BY

C. A. Strelinger Co.,

Bates & Congress Sts., Detroit, Mich.

Bolt cutter, 1 in. Adams, complete.

Boring and turning mill, 38 in. Baush, with 2 swivel heads, four chuck jaws.

Cut-off saws, swing (2).

Engine lathe, 16 in. x 10 ft. LeBlond, standard pattern.

Milling machine, Burke, with index heads, arbor and column.

Milling machine, No. 3 Fox, hand and power feed.

Milling machine, No. 3 Owen, plain, with all power feed.

Radial drill, 3 ft. Bickford tapping attachment.

Standard No. 1 drawing and broaching press.

Tool grinder, Gisholt.

Press, D. G. No. 73 Ferracute.

FOR SALE BY

J. W. Wright & Co.,

2nd and Morgan Sts., St. Louis, Mo.

LATHES.

18x10 Bradford, compound rest.

19x10 Gray, compound rest.

19x12 Gray, compound rest.

20x12 Gray, compound rest.

28x12 Fifield, compound rest.

29x12 Reed, compound rest.

42x15, compound rest.

PLANERS AND SHAPERS.

15x15x36 in. New Haven.

24x24 in. x 8 ft. Pease, 2 heads.

24 in. Steptoe, triple geared.

56x56x12 ft. Gray.

PRESSES.

No. 32 Swaine, power.

No. 35 Swaine, power (3).

No. 51 Swaine, power (3).

Small presses, power (2).

No. 3 Swaine, foot (7).

SCREW MACHINES.

No. 54 Bardons & Oliver, 24 in. capacity, A-1.

DRILLS.

28 in. Sibley, back gear, power feed.

34 in. upright, back geared, power fd.

34 ft. Fosdick, radial.

4 ft. Gang, radial.

MOTORS.

5 h. p. Wagner, a. c., 220 v., 60c., s. p.

5 h. p. Ft. Wayne, a. c., 220 v., 60c., 3p.

10 h. p. Fairbanks, a. c., 220 v., 60c., 3p.

20 h. p. Ft. Wayne, a. c., 220 v., 60c., 3p.

50 light dynamo.

MISCELLANEOUS.

Blower, No. 2 Roots.

Bolt cutter, 1 1/2 in. National, double.

Boring mch., cylinder, No. 1 Barrett

Cock grinder.

Cutter grinder, No. 3 Brown & S.

Floor grinder, No. 2 Safety.

Hack saw, power.

Hammer, power, No. 4 Perfect.

Pipe machine, 2 in. Jarecki.

Punch and shear, combination, Ohio

Vise, No. 3-F., B. & S.

SECOND-HAND MACHINERY

FOR SALE BY

Western Machinery Co., - 6th & Baymiller Sts., Cincinnati, O.

We have for sale a 7 ft. old style single head boring mill, friction feed; a 44 in. x 16 ft. triple geared lathe and fifty other good lathes, planers, drill presses, etc., that we can offer at bargain prices.

Write for full specifications.

Have you any metal working machinery for sale?

FOR SALE BY

The Motch & Merryweather Machinery Company,

707-715 Lakeside Av., N. W., - - - - - Cleveland, Ohio

Branches: Detroit, Cincinnati, Pittsburg.

We offer for sale the following refitted machine tools:

DRILL PRESSES-UPRIGHT.

Dallett, portable (2).

6 spindle, Quint, turret.

RADIAL DRILLS.

4 ft. Box, half universal.

4 ft. 6 in. Pond, heavy.

GEAR CUTTERS.

22x9 in. x 4 p, Gould & Eberhardt.

48x10 in. x 3 p. Gould & Eberhardt.

GRINDERS.

No. 1 Cincinnati, cutter grinder, complete.

"PO" Yankee drill grinder.

No. 1 Leland & Faulconer, wet tool.

No. 11 Brown & Sharpe, (2).

No. 2 Leland & Faulconer, wet tool.

No. 4 Landis, universal.

"A" Yankee drill grinder.

No. 24 Landis, plain.

HAMMERS.

60 lb. Bradley, cushion helve.

KEYSEATERS.

24x2 in. Morton.

LATHES-ENGINE.

12x6 Bullard, with turret.

22x12 Lathe & Morse, 4 step cone, belt feed, compound rest.

14x8 Flather, 4 step cone, elev. rest.

22x15 Pond, compound rest.

16x8 Greaves & Klusman, compound rest, taper attachment.

24x12 Lodge & Shipley, 5 step cone, compound rest, quick change.

18x10 Porter, compound rest.

48x20 Johnson, triple gd., massive, raising blocks to 72 in.

20x8 Flather, 4 step cone, belt feed, compound rest.

20x8 Flather, 5 step cone, belt fd., c. r.

LATHES-POLISHING.

No. 3 Diamond.

MILLING MACHINES.

No. 3 Garvin, plain.

PLANERS.

10 in. Busch, crank, with swivel vise.

24x24x6 Whitcomb, 1 head.

20x20x4 Wheeler, 1 head.

27x5 New Haven, 1 head, (2).

24x24x6 Ohio, one head.

30x10 Detrick & Harvey, open side.

PRESSES.

P-4. Ferracute.

No. 62 Toledo, triple geared.

SHAPERS.

15 in. Hendey.

20 in. Hendey, friction.

15 in. Smith & Mills, single geared crank.

20 in. Kelly, crank.

16 in. Steptoe, crank.

24 in. Ohio, shifting belt.

16 in. Gould & Eberhardt, crank.

26 in. Cincinnati, shifting belt.

28 in. Hendey, friction.

TURRET LATHES.

12x14 Potter & Johnson.

24 in. Lodge & Shipley screw mach.

6x16 Potter & Johnson.

28 in. Gisholt, rapid traverse.

22 in. Universal, chuck fitted.

44 in. Grant chucking lathe.

MISCELLANEOUS.

Belt lacer, 17 in. Peerless.

Pneumatic gap riveter, 10x37 in.

Nut tapper, 1 1/2 in. Acme, 6 spindle.

Chicago.

Pneumatic punch, Caskey.

SECOND-HAND MACHINERY

FOR SALE BY

Atlas Engine Works,

Indianapolis, Ind.

Boring machine, horizontal cylinder, 14 in. Barrett, duplex.
Boring machines, horizontal cylinder, 20 and 28 in. Barrett.
Boring mills, vertical, 84, 96 and 108 in. Betts.
Drill, multiple spindle horizontal, 12 spindle Baush.
Drills, multiple spindle vertical, 14 and 16 spindle.
Hydraulic press, 48 in., 150 ton.
Hydraulic press, 72 in., 300 ton.
Lathes, engine, 38 in. x 18 ft. New Haven.
Lathes, turret, 24 in. x 8 ft. American.
Millers, vertical, No. 2 and No. 4 Beaman & Smith.
Millers, planer type, 50x36 in. x 14 ft. Ingersoll, with two vertical heads.
Planers, double head, 24 in. x 6 ft. and 36 in. x 12 ft.
Shapers, 34 and 48 in.
Boiler and sheet iron shop tools.
Write for complete list and prices.

FOR SALE BY

O. L. Packard Machinery Co., Chicago, Ill., and Milwaukee, Wis.

LATHES.

22-36x22, plain rest.	36x16 Le Blond.
24x10 Lodge & Shipley, taper.	72x22, comp. rest, with raising blocks
36-50x18 Fitchfield, compound rest.	to increase swing to 120 in.
36 in. chucking.	

PLANERS.

24x24x5 Pond, 2 heads on cross rail.	24x24x6 Hendey.
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DRILLS.

23 in. Barnes, power feed.	5 ft. Cincinnati full universal radial.
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MILLERS.

No. 2 Becker-Brainard vertical.	No. 24 Oesterlein, plain.
No. 5 Garvin, plain.	

MISCELLANEOUS.

Die milling machine, Thurston.	Hammer, steam, 250 lbs. Bell.
Gear cutter, 36 in. Brainard.	Vertical mill, 34 in. Colburn.

FOR SALE BY

McCabe Machine Co.,

P. A. McCabe, Pres., 95 Liberty St., New York, N. Y.

Automatic chucking machine, 8½x16 in., Potter & Johnston, near new.
Boring mill, 30 in., swivel turret, combination chuck, Bullard, near new.
Boring mill, 42 in., double head with turret, comb. chuck, Bullard, near new.
Drill, 28 in., geared feeds, equipped for tapping, Prentice, near new.
Drill, radial, 3½ ft. arm, tapping device, Gang, near new.
Gear cutter, 24 in., full automatic, Becker-Brainard, near new.
Gear cutter, 30 in., full automatic, Gould & Eberhardt, good.
Lathe, 18x8 ft., rapid reduction type, Lodge & Shipley, good.
Lathe, 32 in. x12 ft., heavy pattern, Fitchburg, good.
Slotter, 12 in. stroke, 30 in. table, all feeds, Sellers, good.
Turret lathe, 2x24 in., with tools, Jones & Lamson, good.
Turret lathe, 2 in., semi-automatic, Potter & Johnston, near new.
Turret lathe, 2½ in., power feeds, pan bed, Drezes, good.
Turret lathe, 3½ in., triple gd., 26 in. swing, will face 21 in. diam., Bullard, good.
"Near new" indicates condition practically good as new.
"Good" indicates condition not quite "near new", but very good.

SECOND-HAND MACHINERY

FOR SALE BY

The Cincinnati Planer Co.,

Cincinnati, Ohio.

LATHES.

15x5 Dreeses, turret.
16x6 American, taper attachment.

16x16 screw, automatic.

PLANERS.

24x24x6 L. W. Pond, 1 head.
28x28x8 Cincinnati, 1 head.

26x26x14 Chandler, 2 heads.
74x56x20 L. W. Pond, 2 heads.

MISCELLANEOUS.

Balancing ways, Bowsher.
Boring and drilling machine, No. 1
Fosdick, horizontal.
Cranes, hand, 5 ton, 30 ft. span (2).
Drill, 14 in. American, sensitive.

Drill, 5 ft. Fosdick, plain radial, parallel drive.
Hack saw.
Variable speed countershafts, Reeves (2).

FOR SALE BY

W. L. Perkins Jr. & Co., 136 Liberty St., - New York City, N. Y.

LATHES.

12x4 automatic thread cutting.
18x5 Reed stud lathe.
20x8 Bement, c. r., p. c. f.
24x10 Harrington, c. r., p. c. f.
36x10 Pond, c. r., p. c. f.

26x12 Blaisdell, c. r., p. c. f.
30x14 Bement, c. r., p. c. f.
32x14 Harrington, c. r., p. c. f.
13 in. Bardons & Oliver, turret.
18 in. American, brass turret.

DRILLS.

30 in. Aurora, b. g. & p. f.
12 in. Pond, b. g. & p. f.
36 in. Gould & Eberhardt, b. g. & p. f.

4 ft. Bement semi-radial.
6 ft. Niles plain radial.
8 ft. Bement half universal.

PLANERS.

24x20 in. x5 ft. Pond.
24x20 in. x5 ft. 9 in. Sellers.
36x26 in. x6 ft. Putnam.

36x36 in. x10 ft. Powell, 2 heads.
36x36 in. x20 ft. Pond, 4 heads.
46x46 in. x7 ft. 4 in. Sellers.

MISCELLANEOUS.

Miller, slab, 24 in. x8 ft. Bement-M.
Miller, slab, 34 in. x11 ft. Newton.
Punch, No. 4 Long & Allstatter.

Shear, No. 5 Long & Allstatter.
Slotter, 10 in. Sellers.
Slotter, 12 in. Sellers.

FOR SALE BY

The Randle Machinery Co.,

1739 Powers St., Cincinnati, O.

BOILERS.

Horizontal tubular, from 6 to 150 h. p., for all pressures.

Fire box, from 8 to 80 h. p.
Vertical, from 3 to 50 h. p.

ENGINES.

Corliss, from 50 to 350 h. p.
Automatic, from 25 to 100 h. p.

Throttling, from 5 to 150 h. p.

PULLEY LATHE.

60 in. Stevens.

42x42x16 Bement-Daugherty, single head.

MILLER.

Duplex brass miller.

TOOL GRINDER.

Springfield tool grinder.

BLOWERS.

Nos. 2 and 4 Roots.

BULLDOZER.

No. 36 Pittsburgh.

PIPE THREADER.

4 in. Camden.

AIR COMPRESSOR.

8x6x9 locomotive type.

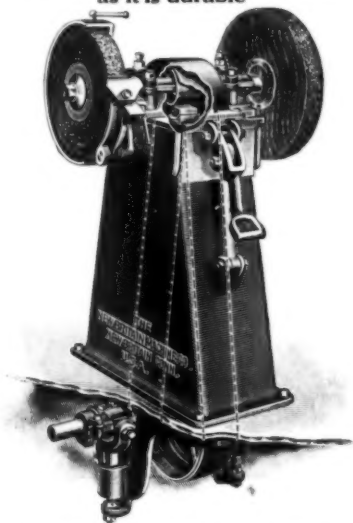
MISCELLANEOUS.

Heaters, pumps, tanks, blowers, exhausters, saw mill and general machinery.
Write for list. Also a full assortment of new machinery.

Sole manufacturers of the celebrated "Leader" Injectors and Ejectors. Send for circulars.

FOR POLISHING

A lathe that lasts, and is as effective
as it is durable



Machine Tool Construction

Every part of the Whitney Jack is as carefully and scientifically constructed as your lathe or planer, with crucible steel spindle, self-adjusting, self-oiling bearings, absolutely protected against grit. The downward belt pull insures a steady, true-running wheel that will speed up to 5,000 r. p. m. No countershafts; no shifting belts; starts and stops instantly by a single lever movement. It will save at least an hour of your operator's time every day.

It is worth more than it costs

The New Britain Machine Co.

60 Chestnut St., New Britain, Conn.

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